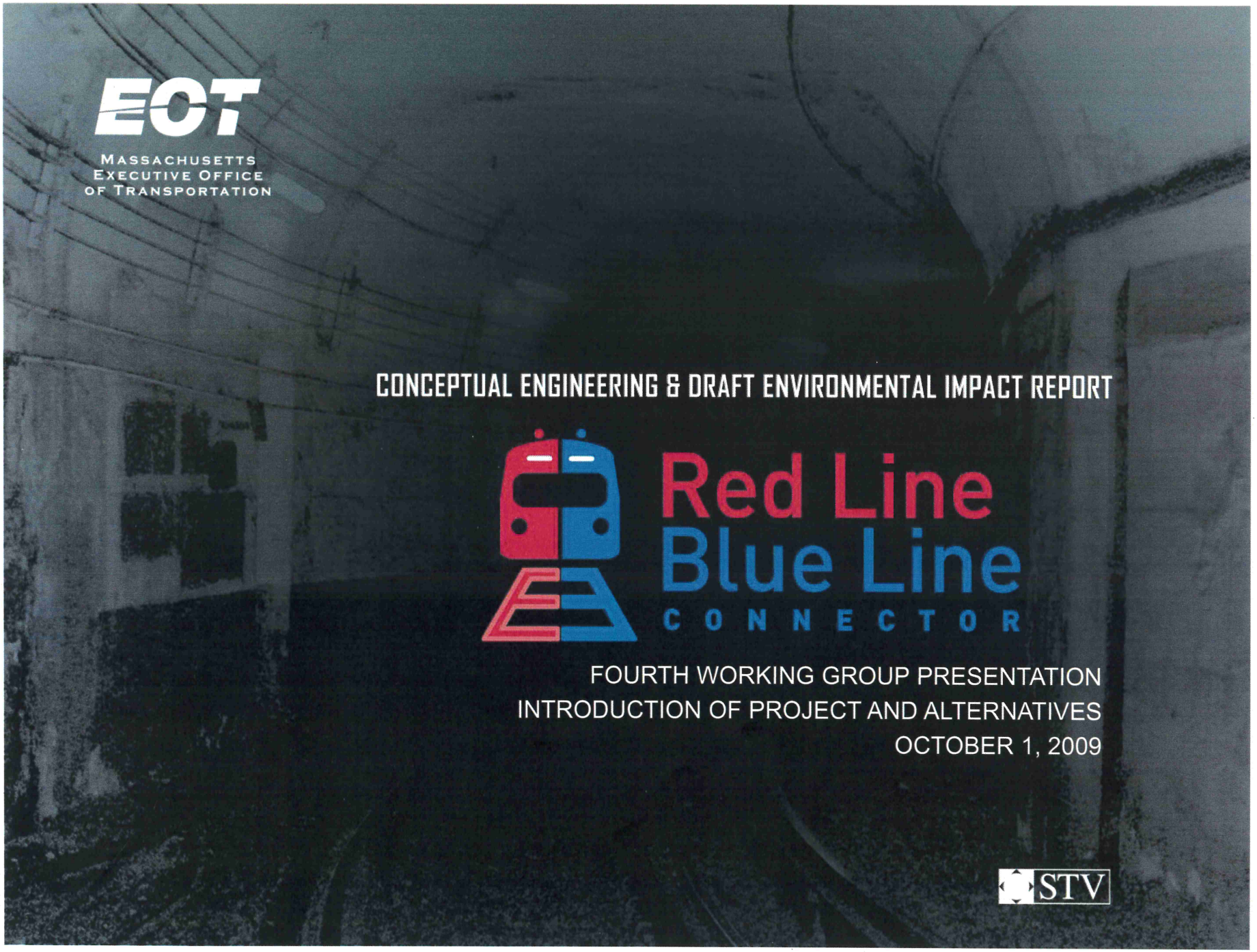
EOT
MASSACHUSETTS
EXECUTIVE OFFICE
OF TRANSPORTATION
CONCEPTUAL ENGINEERING & DRAFT ENVIRONMENTAL IMPACT REPORT
Red Line
Blue Line
CONNECTOR
FOURTH WORKING GROUP PRESENTATION
INTRODUCTION OF PROJECT AND ALTERNATIVES
OCTOBER 1, 2009
STV

Presentation Outline

1. Introductions
2. Construction Sequencing
3. Longfellow Bridge Overview
4. CTPS Update on the Project
5. Traffic Management
6. Public Comment/ Questions
7. Public Meeting Update
8. Schedule

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Working Group Goals

The primary role of the Working Group is to:

- *provide local input and perspective*
- *act as a sounding-board for major project decisions*
- *provide project-related information to the communities and constituencies represented by the Working Group members.*

EOT believes that community involvement and input will help to develop the best project for the region.

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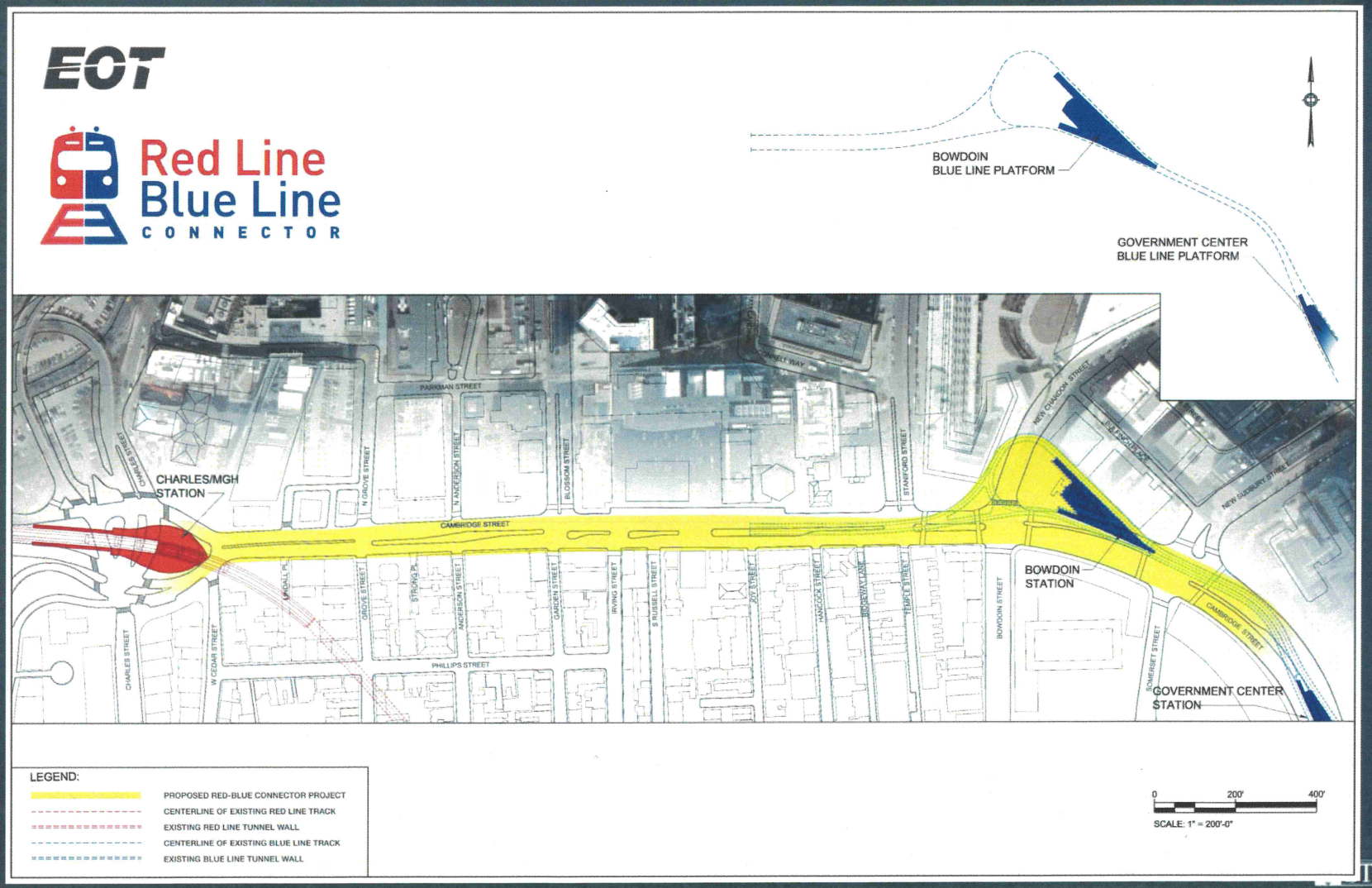
1.0 Introductions



2.0 Construction Sequencing

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2.0 Construction Sequencing Phases and Tasks

Alternative 1: Red / Blue Line Connector with *Elimination* of Bowdoin Station

Alternative 2: Red / Blue Line Connector with *Relocated* Bowdoin Station

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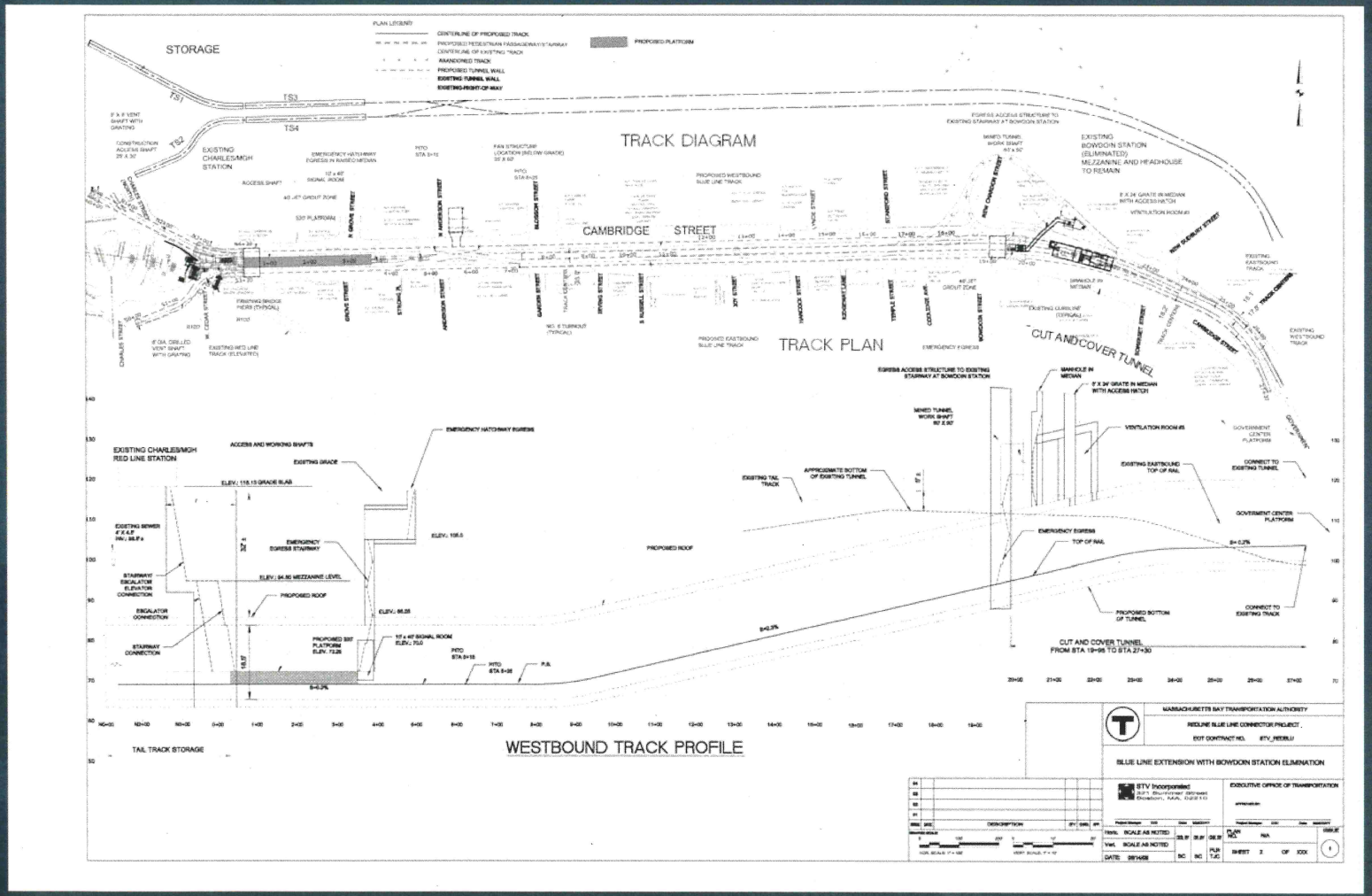
Alternative 1: Bowdoin Eliminated


TRACK DIAGRAM
TRACK PLAN
CAMBRIDGE STREET
CUT AND COVER TUNNEL
EXISTING BOWDOIN STATION (ELIMINATED) MEZZANINE AND HEADHOUSE TO REMAIN
STORAGE
EXISTING CHARLES/MGH STATION
WESTBOUND TRACK PROFILE
TAIL TRACK STORAGE
EXISTING CHARLES/MGH RED LINE STATION
CUT AND COVER TUNNEL FROM STA 19+95 TO STA 27+30
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
REDLINE BLUE LINE CONNECTOR PROJECT
BLUE LINE EXTENSION WITH BOWDOIN STATION ELIMINATION
STV Incorporated
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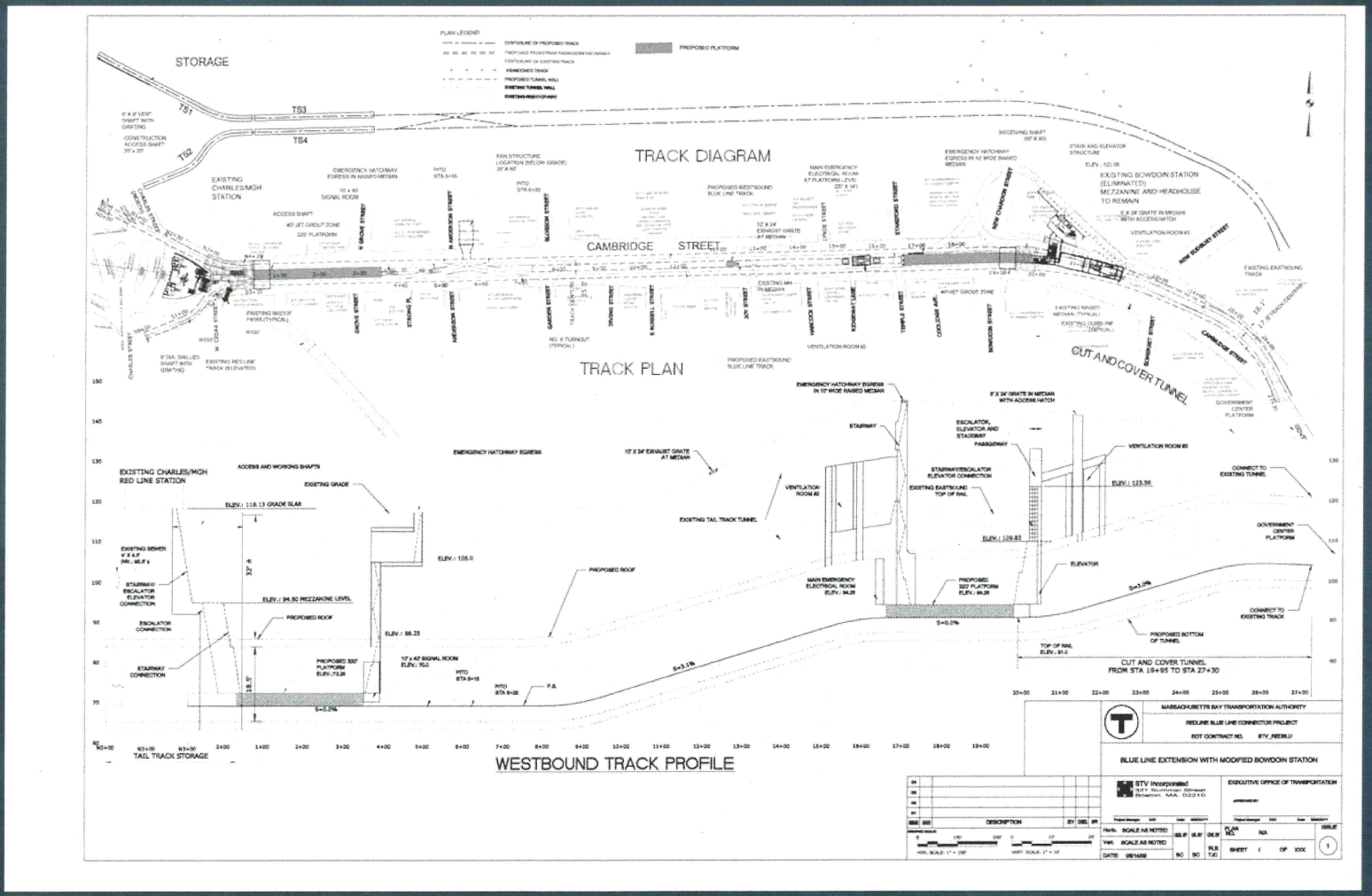
Alternative 2: Bowdoin Relocated


TRACK DIAGRAM
TRACK PLAN
WESTBOUND TRACK PROFILE
STORAGE
CAMBRIDGE STREET
EXISTING CHARLES/MGH STATION
EXISTING BOWDOIN STATION (ELIMINATED) MEZZANINE AND HEADHOUSE TO REMAIN
CUT AND COVER TUNNEL
CUT AND COVER TUNNEL FROM STA 19+95 TO STA 27+30
TAIL TRACK STORAGE
BLUE LINE EXTENSION WITH MODIFIED BOWDOIN STATION

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2.0 Construction Sequencing Phases and Tasks

1. Mobilization/ Utility Relocation and Initial Activities
2. Northerly Tunnel Construction
3. Southerly Tunnel Construction
4. Center Arch and Platform Construction
5. Systems
6. Testing and Closeout

For the purpose of this phase of the Project the Conceptual Construction Schedule is defined as beginning during the first half of 2012 and completed in approximately the first quarter of 2017

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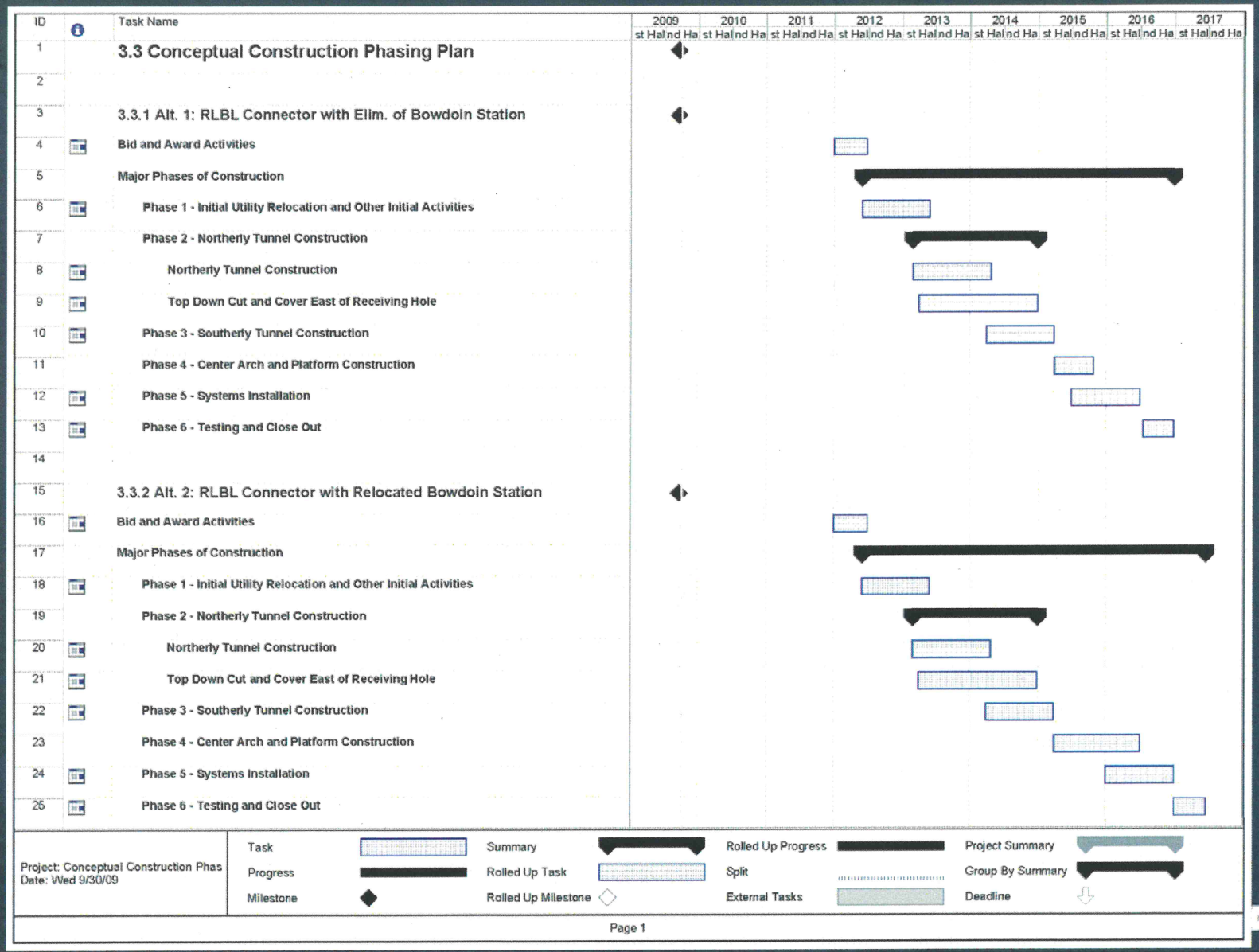
2.0 Construction Schedule


ID
Task Name
2009
2010
2011
2012
2013
2014
2015
2016
2017
st Half nd Half
1 3.3 Conceptual Construction Phasing Plan
2
3 3.3.1 Alt. 1: RLBL Connector with Elim. of Bowdoin Station
4 Bid and Award Activities
5 Major Phases of Construction
6 Phase 1 - Initial Utility Relocation and Other Initial Activities
7 Phase 2 - Northerly Tunnel Construction
8 Northerly Tunnel Construction
9 Top Down Cut and Cover East of Receiving Hole
10 Phase 3 - Southerly Tunnel Construction
11 Phase 4 - Center Arch and Platform Construction
12 Phase 5 - Systems Installation
13 Phase 6 - Testing and Close Out
14
15 3.3.2 Alt. 2: RLBL Connector with Relocated Bowdoin Station
16 Bid and Award Activities
17 Major Phases of Construction
18 Phase 1 - Initial Utility Relocation and Other Initial Activities
19 Phase 2 - Northerly Tunnel Construction
20 Northerly Tunnel Construction
21 Top Down Cut and Cover East of Receiving Hole
22 Phase 3 - Southerly Tunnel Construction
23 Phase 4 - Center Arch and Platform Construction
24 Phase 5 - Systems Installation
25 Phase 6 - Testing and Close Out
Project: Conceptual Construction Phas
Date: Wed 9/30/09
Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline
Page 1

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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 1 – Mobilization/ Utility Relocation and Initial Activities

1. Mobilize
2. Construct Alternative Parking for Mass Eye and Ear (MEEI)
3. Reconstruct Red Line Pier No. 7
4. Reconstruct Red Line Pier No. 6
5. Construct Temporary Depression in MEEI Parking Lot (Below Storrow Drive Ramp)
6. Relocate Initial Cambridge Street Utilities from Northerly Side of Cambridge Street
   - *@ Starter Hole*
   - *@ Receiver Hole*
7. Relocate Initial Cambridge Street Utilities @ Cut and Cover Area (East of Bowdoin Station)
8. Replace Initial Signal / Track, and
   - *Install Second Crossover East Of Government Center Station*
   - *Modify Signal Control Lines*
   - *Create New Signal Case On Government Center Platform*
   - *Terminate Signal Control Lines , Transformer And Resistors*
   - *Install Track Bumpers*
9. Close Existing Bowdoin Station

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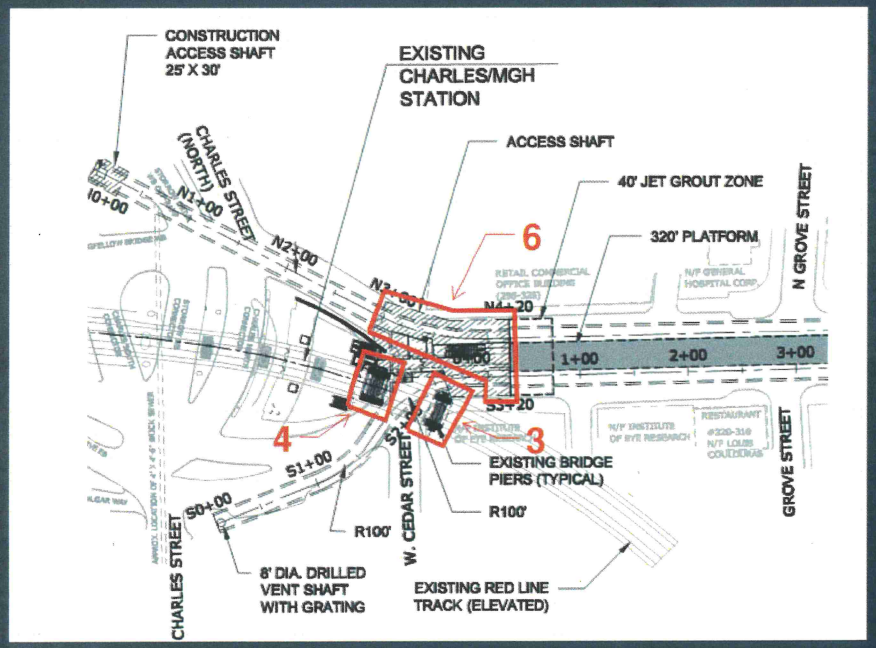
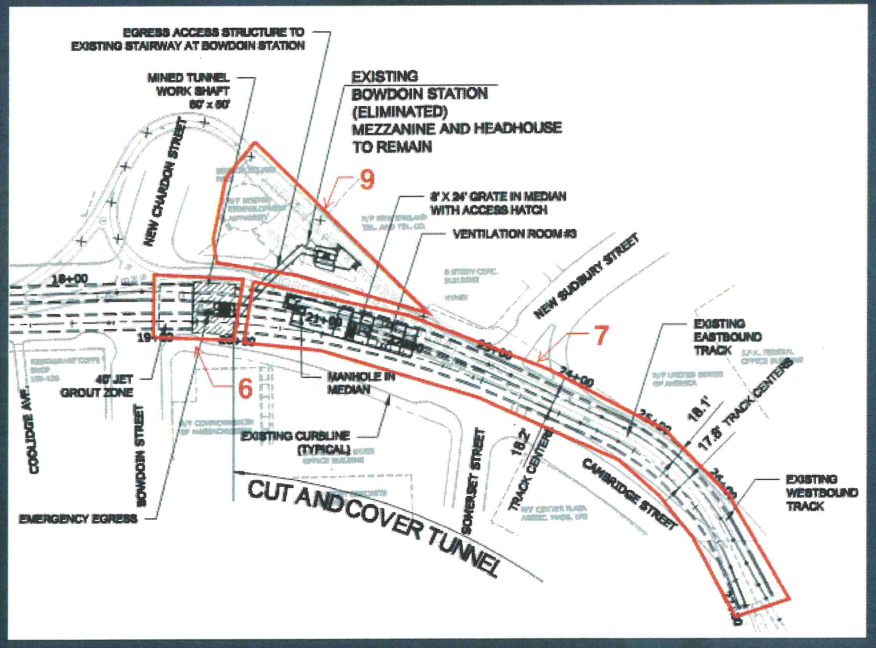
Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station
Construction Sequencing

Phase 1 – Mobilization/ Utility Relocation and Initial Activities





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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction

1. Mine Northerly Tube between the Starter Hole and the Receiver Hole. [TBM] , and
   - » *Construct Cut and Cover area East of Receiver Hole*
   - » *Install Traffic Decking Installation (nights and weekends). [Pile and Lagging Earth Support System]*
   - » *Construct the Connection between the Ventilation Structure/ Emergency Egress and Northerly Tunnel. [Sequential Mining]*
   - » *Construct Escalators/ Elevator at Northern Part of Charles/MGH Station.*
   - » *Excavate Northerly Receiver Hole Area [Conventional Earth supporting Method]*
   - » *Install Traffic Decking (nights and weekends).*
2. Construction of the Northerly Part of the Tunnel Roof/Structure above Traction Power Substation and the Elec. Substation at Starter Hole Area, and
   - » *Extract TBM from the Receiver Hole (weekend). [Conventional Building Floor, Wall and Roof Construction]*

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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction, *Cont.*

3. Grout Northerly Track Tunnel
4. Construct Northerly Tail Track Tunnel [Sequential Mining] , and
   - *Remove Charles/MGH Red Line Station Curtain Wall at Impacted Location*
   - *Excavate Northerly Starter Hole [Conventional Earth supporting Method]*
   - *Install Traffic Decking (nights and weekends)*
5. Grout Northerly Tube (nights and weekends), and
   - *Install TBM for Northerly Tube Construction (weekend)*

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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction, *Cont.*

6. Relocate Initial Cambridge Street Utilities from Northerly Side of Cambridge Street
   - *@ Starter Hole*
7. Construct Northerly Part of Tunnel Roof at Receiver Hole Area [Conventional Building Floor, Wall and Roof Construction]
8. Relocate Temporary and Permanent Utilities from Southerly Side of Cambridge Street
   - *@ Receiver Hole Area 1.*
9. Excavate Southerly Part of Starter Hole, and
   - *Install Traffic Decking (nights and weekends). [Conventional Earth Supporting Method]*

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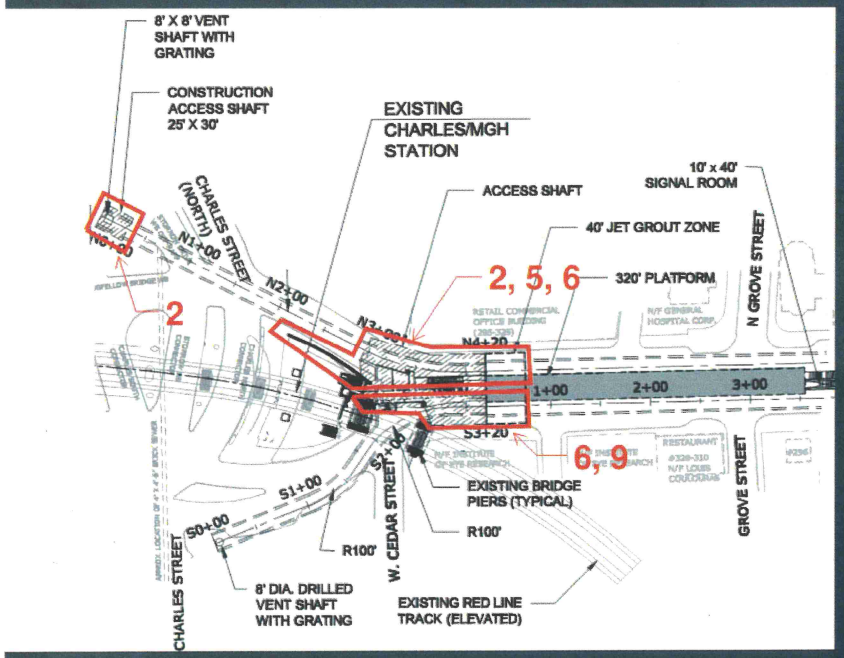
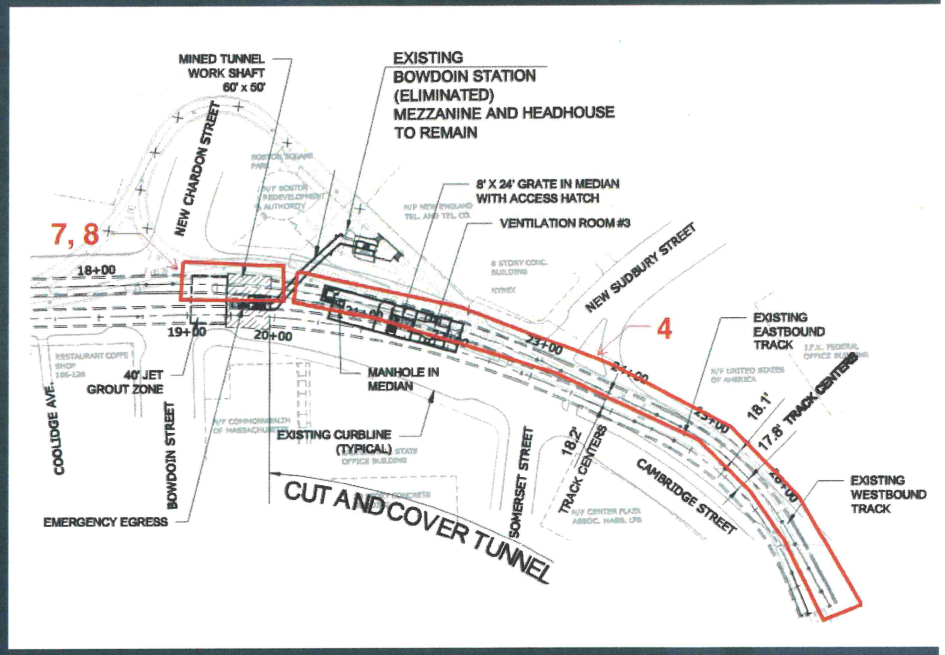
Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 2 Construction





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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 3 - Southerly Tunnel Construction

1. Grout Southerly Tube (nights), and
   - Install TBM for Southerly Tube Construction (weekend).
2. Mine Southerly Tube Between Starter Hole and Receiver Hole. [TBM] , and
   - Construct Stairs at Southerly Part of Charles/MGH Station.
   - Construct Southerly Part of Tunnel Roof /Structure above Traction Power Substation /Elec. Substation at Starter Hole area. [Conventional Building Floor, Wall and Roof Construction]
   - Relocate Permanent Utilities from Northerly Side of Cambridge Street at the Starter Hole Area
3. Backfill Southern Part of Starter Hole Area
4. Extract TBM from Receiver Hole (weekend)

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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 3 - Southerly Tunnel Construction

5. Restore Curtain Wall at Charles/MGH Station, and
   - Construct Southerly Part of Tunnel Roof at Receiver Hole area. [Conventional Wall and Roof Construction]
6. Relocate Permanent Utilities from Northerly Side of Cambridge Street to Southerly Side at Receiver Hole area
7. Backfill Receiver Hole Area, and
   - Grout Southerly Tail Track Area for Tunnel Construction. [Sequential Mining]
   - Construct Ventilation Structure No. 2

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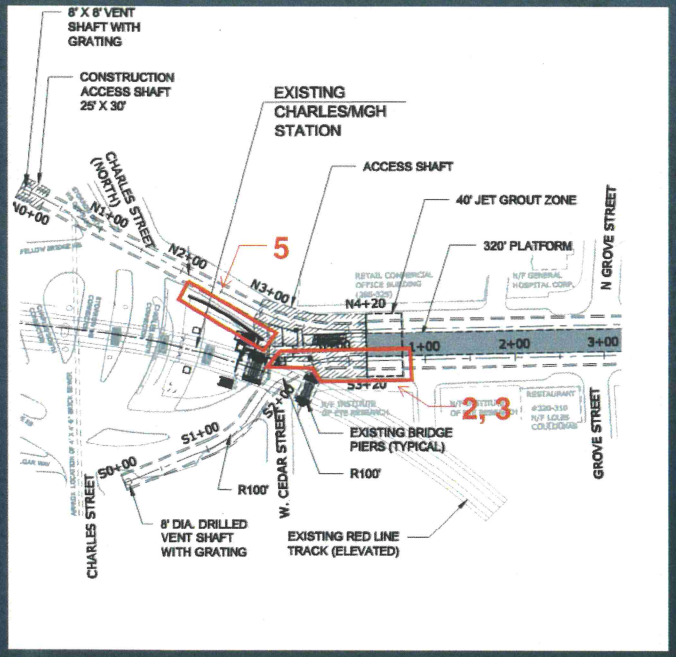
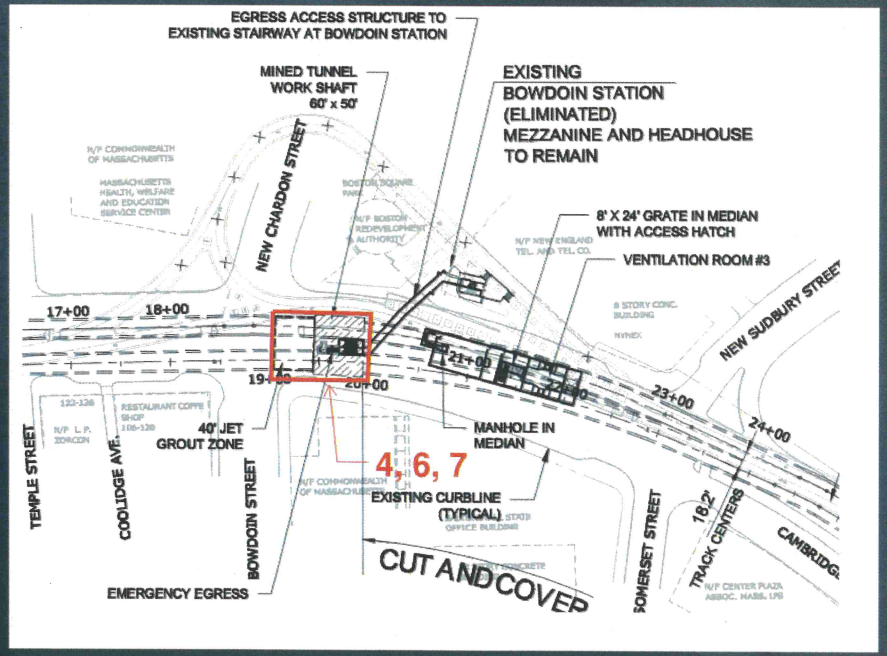
Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station
Construction Sequencing

Phase 3 - Southerly Tunnel Construction





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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 4 - Center Arch and Platform Construction

1. Construct Center Portion Between Two Tubes at
   - Cross Over Area. [Sequential Mining], and
   - Charles/MGH Station Platform area. [Sequential Mining]
2. Relocate Permanent Utilities
   - @ the Cut and Cover Area (East of Bowdoin Station) , and
   - Construct Egressway at Charles/MGH Station Area [Soldier Pile/Lagging Earth Support System]
   - Construct Egressway at Eliminated Bowdoin Station Area [Soldier Pile/Lagging Earth Support System]
   - Construct Platforms at Charles/MGH Station [Conventional Construction Method]
   - Track Work
   - Cambridge Street Surface Restoration [Direct Fixation Track System]

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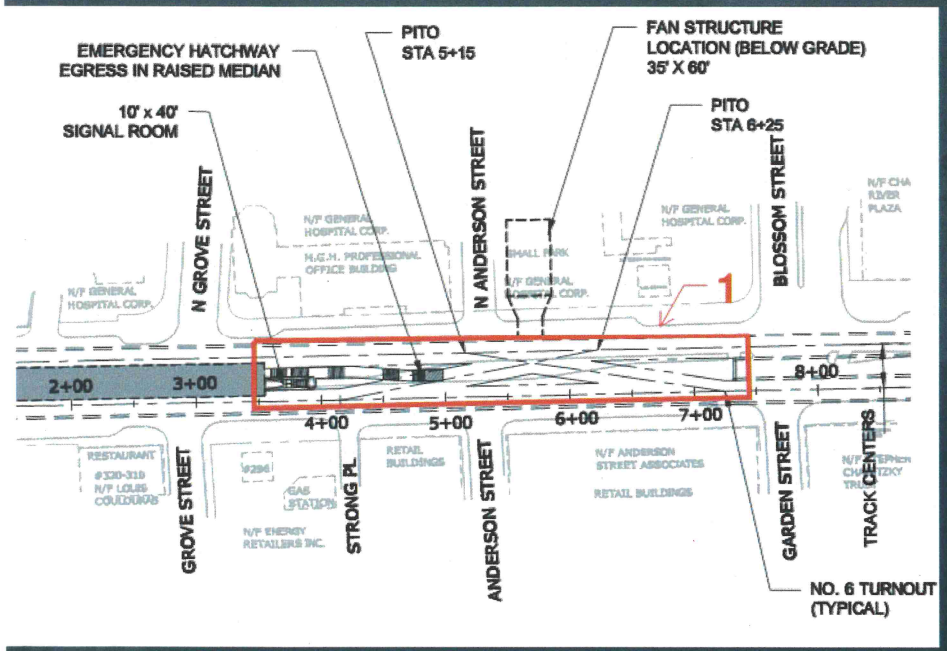
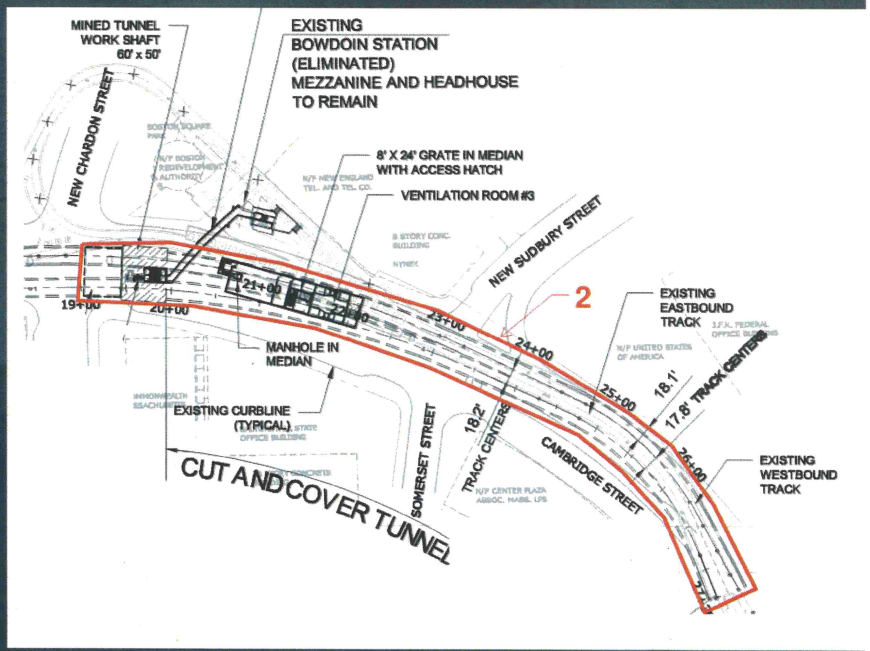
Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station
Construction Sequencing

Phase 4 - Center Arch and Platform Construction





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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 5 - Systems

1. Install
   - Traction Power Substation Equipment /Cables
   - Electric Substation Equipment/Cables
   - Signal Bungalow/ Signalization / Cables
   - Communication Equipment / Cables
   - Mechanical HVAC Systems
   - Fire Protection Systems
   - Electrical and Plumbing at Stations

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Alternative 1: Red / Blue Line Connector with Elimination of Bowdoin Station Construction Sequencing

Phase 6 - Testing and Closeout

1. System / Revenue Testing
2. Demobilization / Project Close out

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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 1 - Mobilization/ Utility Relocation and Initial Activities

1. Mobilize
2. Construct Alternative Parking for Mass Eye and Ear (MEEI)
3. Reconstruct Red Line Pier No. 7
4. Reconstruct Red Line Pier No. 6
5. Construct Temporary Depression in MEEI Parking Lot (Below Storrow Drive Ramp)
6. Relocate Initial Cambridge Street Utilities
   - *@ Starter Hole*
   - *@ Receiver Hole*
7. Relocate Initial Cambridge Street Utilities @ Cut and Cover Area (East of Bowdoin Station)
8. Replace Initial Signal / Track, and
   - *Install Second Crossover East of Government Center Station*
   - *Modify Signal Control Lines*
   - *Create New Signal Case at Government Center Platform*
   - *Terminate Signal Control Lines , Transformer and Resistors*
   - *Install Track Bumpers*
9. Close Existing Bowdoin Station

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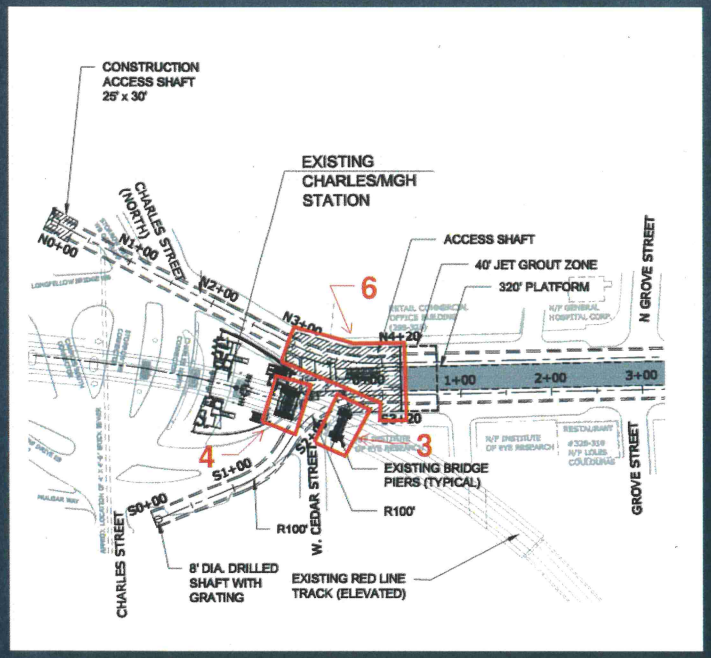
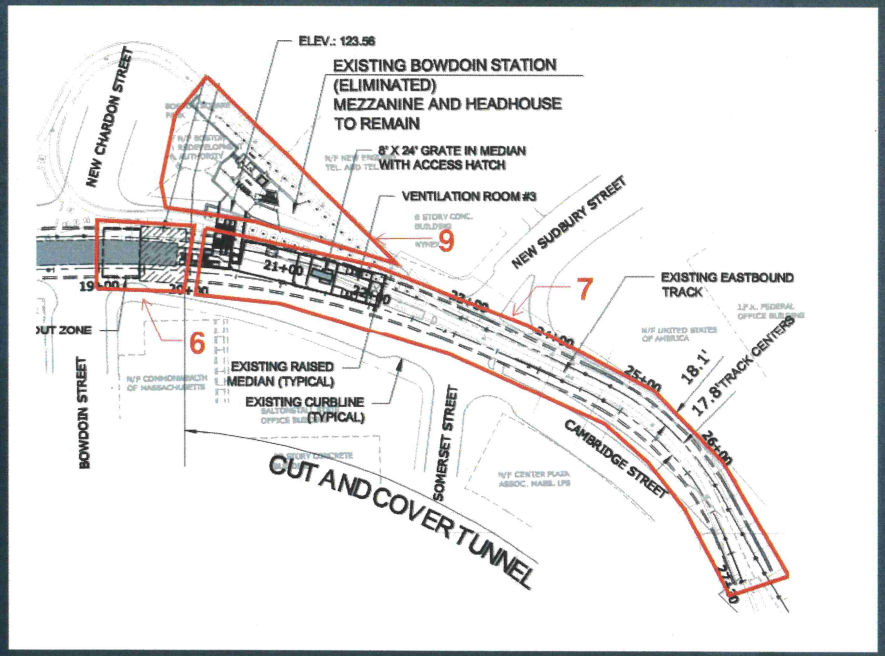
Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

Phase 1 - Mobilization/ Utility Relocation and Initial Activities





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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction, Cont.

1. Grout Northerly Track Tunnel
2. Construct Northerly Tail Track Tunnel [Sequential Mining] , and
   - *Remove Impacted Charles/MGH Red Line Station Curtain Wall*
   - *Excavate Northerly Part of Starter Hole*
   - *Install Traffic Decking (nights and weekends).* [Conventional Earth supporting Method]
3. Grout Northerly Tube (nights and weekends), and
   - *Install TBM for the Northerly Tube Construction (weekend)*

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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction, Cont'd.

4. Mining the Northerly Tube between the Starter Hole and the Receiver Hole. [TBM] , and
   - *Construct Cut and Cover area East of the Receiver Hole Area*
   - *Install Traffic Decking (nights and weekends).* [Pile and Lagging Earth Support System]
     Construct Connection between Ventilation Structure/ Emergency Egress and Northerly Tunnel [Sequential Mining]
   - *Construct Escalators/ Elevator at Northern Part of Charles/MGH Station*
   - *Excavate Northerly Part of Receiver Hole Area*
   - *Install Traffic Decking (nights and weekends)* [Conventional Earth supporting Method]
5. Construction of the Northerly Part of the Tunnel Roof / Structure above housing the Traction Power Substation /Elec. Substation at Starter Hole area, and
   - *Extract TBM from the Receiver Hole (weekend). [Conventional Building Floor, Wall and Roof Construction]*

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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 2 - Northerly Tunnel Construction, Cont.

6. Relocate Temporary and Permanent Utilities from Southerly Side of Cambridge Street at the Starter Hole Area
7. Construct of Northerly Part of Tunnel Roof at Receiver Hole Area [Conventional Building Floor, Wall and Roof Construction]
8. Construct Bowdoin Station Entranceway
9. Relocate Temporary and Permanent Utilities from Southerly Side of Cambridge Street at the Receiver Hole Area
10. Excavate Southerly Part of Starter Hole, and
    - *Install Traffic Decking (nights and weekends). [Conventional Wall and Roof Construction]*

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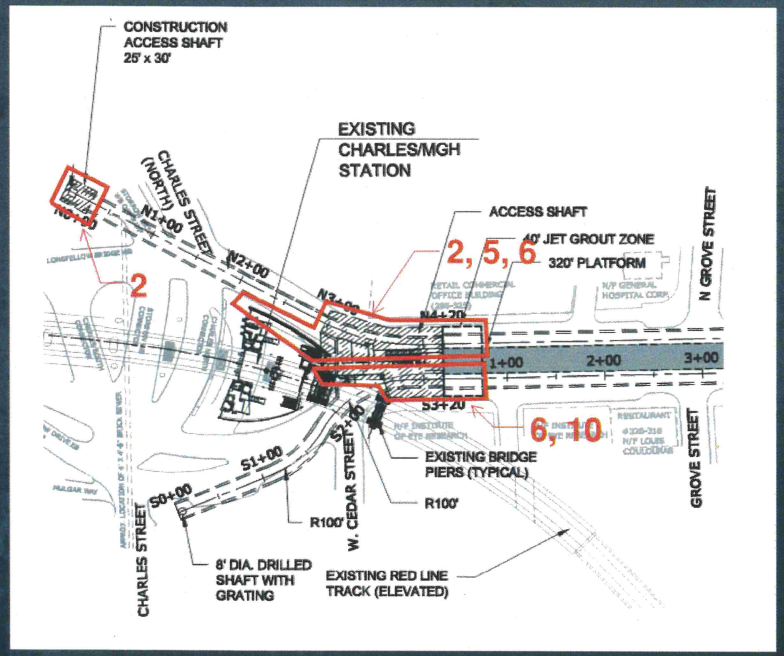
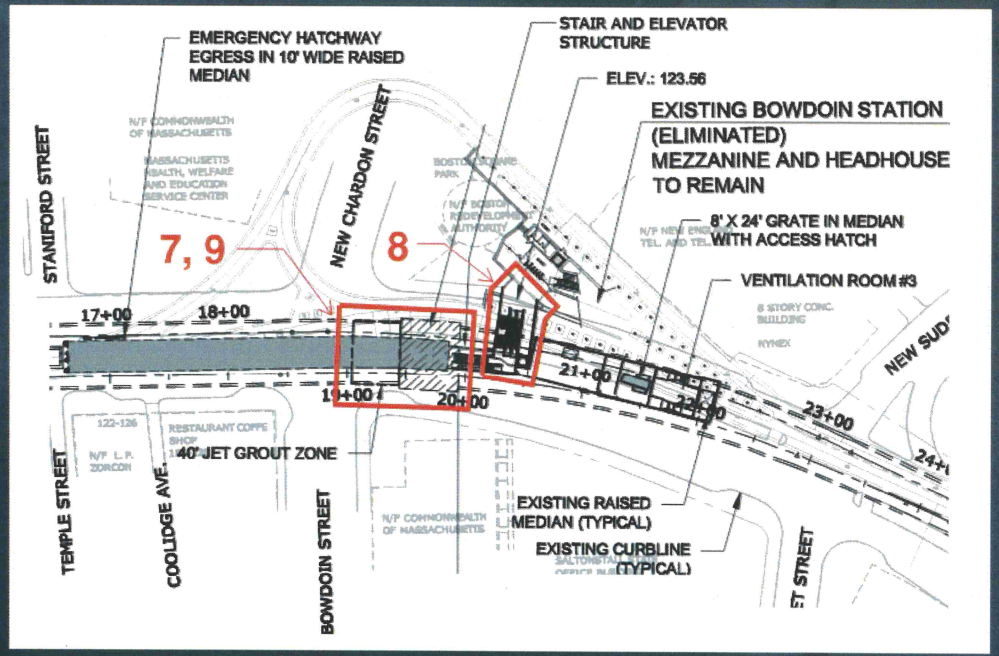
Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

Phase 2 - Northerly Tunnel Construction





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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

3 - Southerly Tunnel Construction

1. Grout the Southerly Tube (nights) Install TBM for the Southerly Tube Construction (weekend)
2. Mine Southerly Tube between Starter Hole and Receiver Hole [TBM] , and
   - *Construct Stairs at Southerly Part of Charles/MGH Station*
   - *Construct Southerly Part of Tunnel Roof/ Structure above Traction Power Substation/ Elec. Substation at Starter Hole Area.* [Conventional Building Floor, Wall and Roof Construction]
   - *Relocate Permanent Utilities from Northerly Side of Cambridge Street at Starter Hole Area*
3. Backfill Southern Part of Starter Hole Area

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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 3 - Southerly Tunnel Construction, Cont'd.

4. Extract TBM from Receiver Hole (weekend)
5. Restore Roof and Curtain Wall at Charles/MGH Station, and
   - *Construct Southerly Part of Tunnel Roof at Receiver Hole Area* [Conventional Wall and Roof Construction]
6. Relocate Permanent Utilities from Northerly Side of Cambridge Street at Receiver Hole Area
7. Backfill Receiver Hole Area, and
   - *Grout Southerly Tail Track Tunnel (nights)*
   - *Construct Southerly Tail Track Tunnel Construction* [Sequential Mining]
   - *Construct Ventilation Structure No. 2. / Ventilation Structure No. 3*

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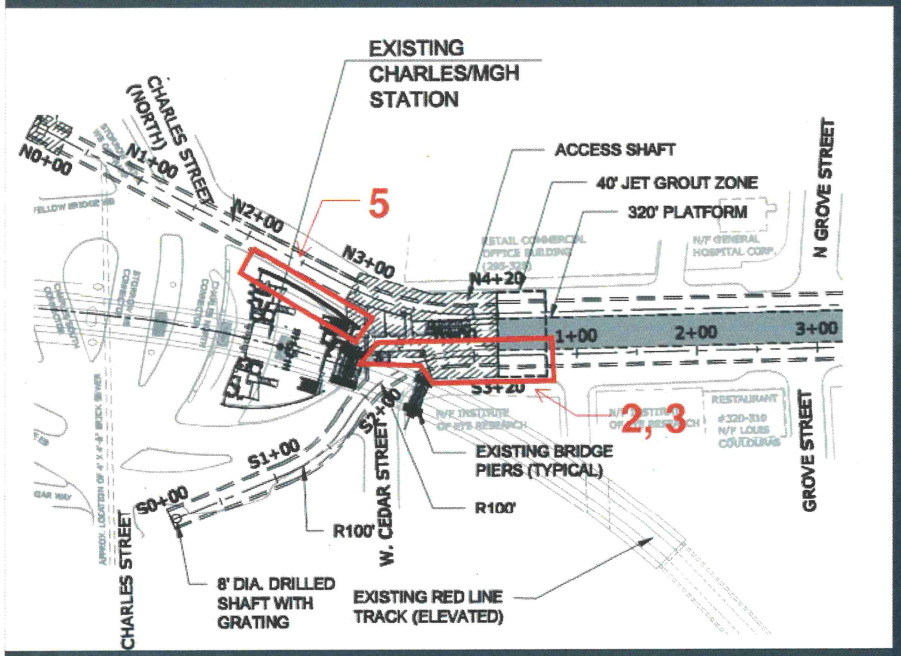
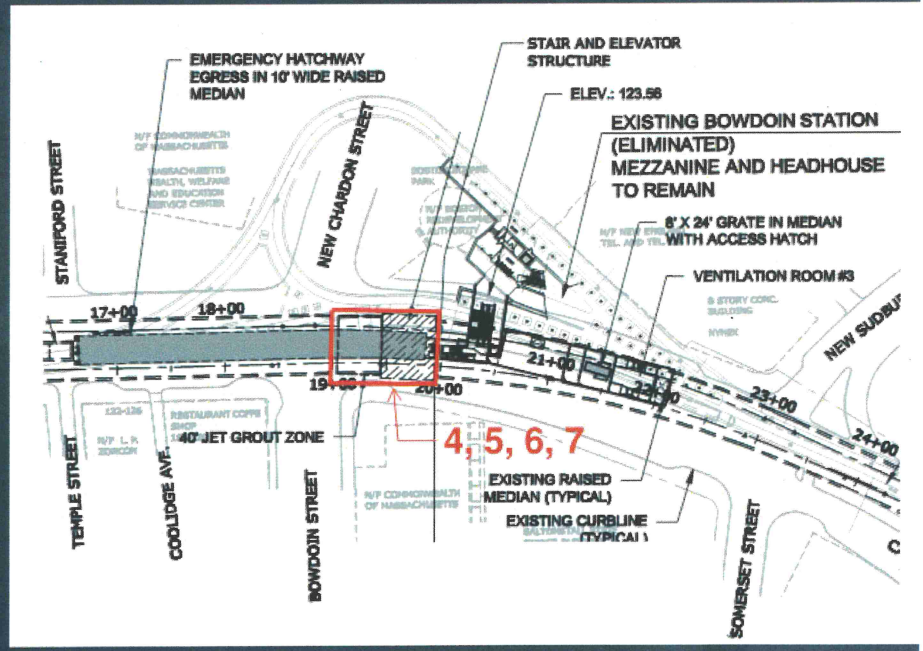
Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

3 - Southerly Tunnel Construction





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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 4 - Center Arch and Platform Construction

1. Construct Center Portion Between Two Tubes at Crossover Area [Sequential Mining] , and
   - *Construct Center Portion Between Two Tubes at Charles/MGH Station Platform Area* [Sequential Mining]
   - *Construct Center Portion Between Two Tubes at Bowdoin Station Platform Area* [Sequential Mining]
2. Relocate Permanent Utilities @ Cut and Cover Area (East of Bowdoin Station), and
   - *Construct Egress way at Charles/MGH Station Area* [Soldier Pile and Lagging Earth Support System]
   - *Construct Egressway at New Bowdoin Station Area* [Soldier Pile and Lagging Earth Support System]
   - *Construct Platforms at Charles/MGH Station* [Conventional Construction Method]
   - *Construct Platforms at Bowdoin Station* [Conventional Construction Method]
   - *Complete Track Work, Cambridge Street Surface Restoration* [Direct Fixation Track System]

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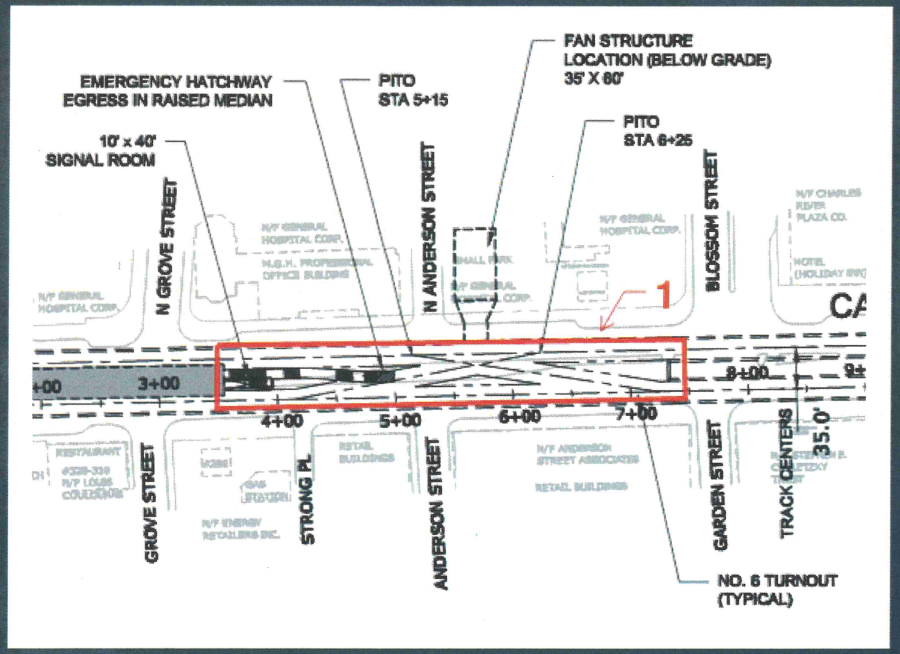
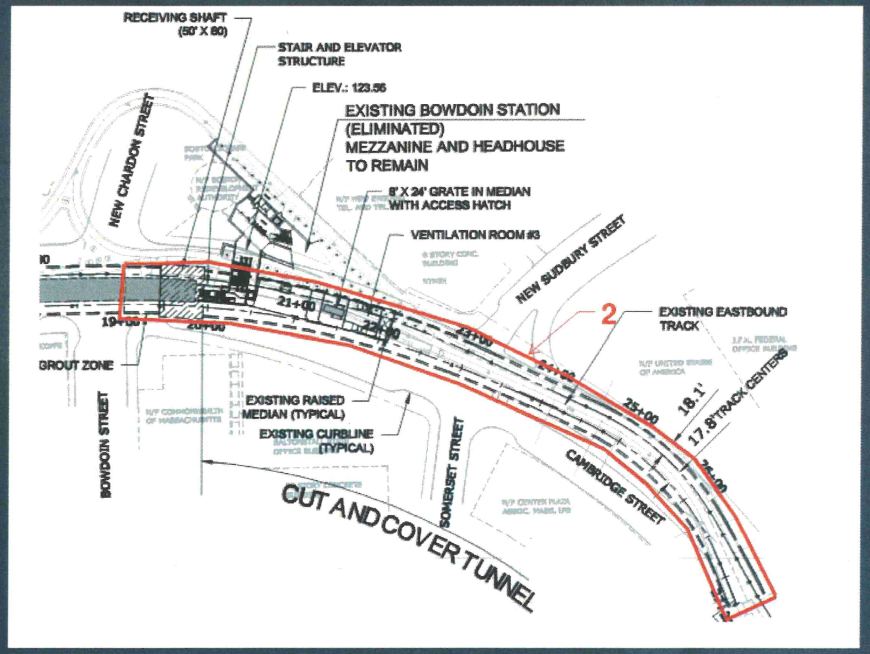
Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

Phase 4 - Center Arch and Platform Construction





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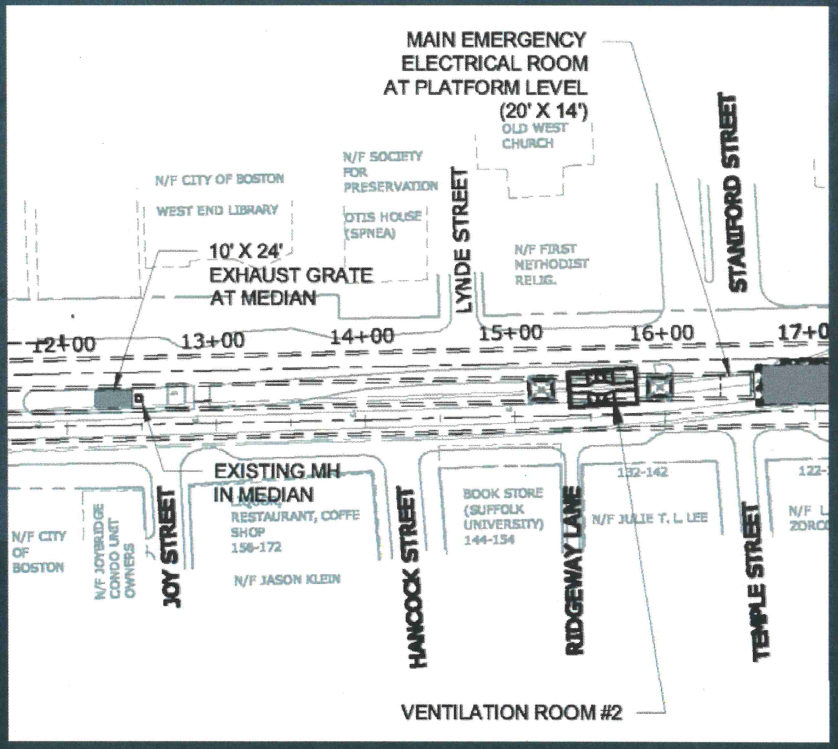
Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station
Construction Sequencing

Phase 4 – Task 2



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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 5 - Systems

1. Install
   - Traction Power Substation Equipment /Cables
   - Electric Substation Equipment/Cables
   - Signal Bungalow/ Signalization / Cables
   - Communication Equipment / Cables
   - Mechanical HVAC Systems
   - Fire Protection Systems
   - Electrical and Plumbing at Stations

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Alternative 2: Red / Blue Line Connector with Relocated Bowdoin Station Construction Sequencing

Phase 6 - Testing and Closeout

1. System and Revenue Testing
2. Demobilization and Project Close out

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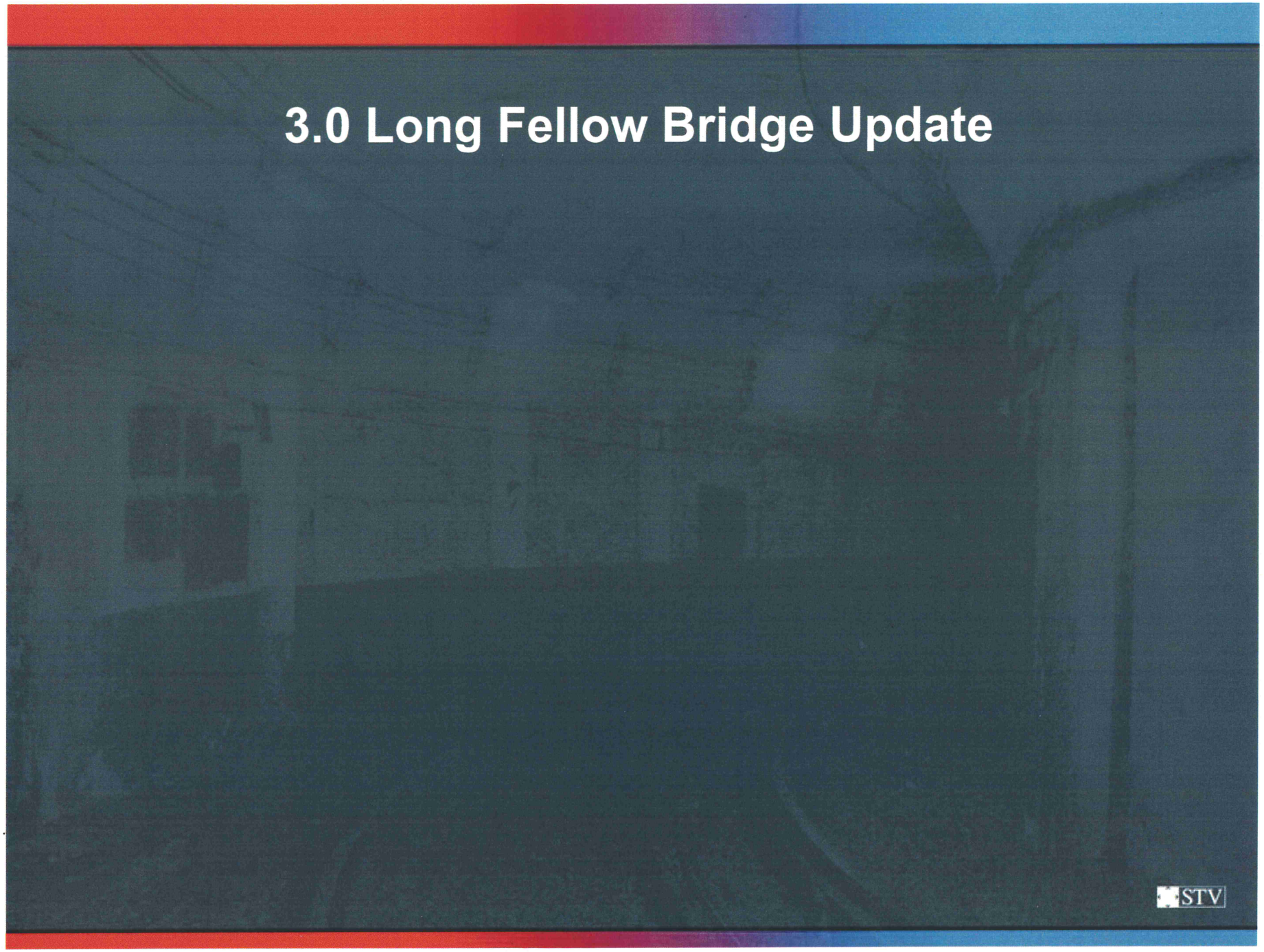
3.0 Long Fellow Bridge Update

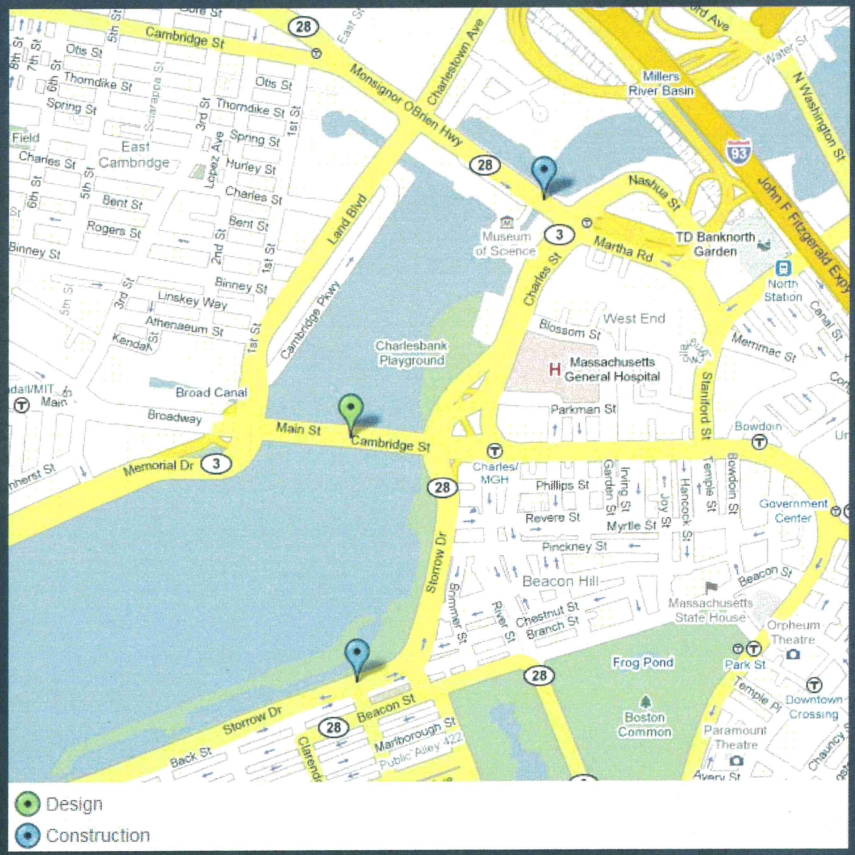


Red Blue Connector

October 1, 2009

Accelerated Bridge Program

- In May 2008, Governor Deval Patrick introduced the $3 billion Accelerated Bridge Program (ABP) to reduce the Commonwealth's growing backlog of structurally deficient bridges.



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ABP PROGRAM

GOALS AND OBJECTIVES

- Stimulate Economic Development and Job Creation
- Save Money By Completing Projects Sooner
- Complete Projects Efficiently and Innovatively
- Transparency and Accountability

INNOVATIVE TECHNIQUES

- Incentive – Disincentive Contracts
- Design-Build Projects
- Project Bundling
- Accelerated Bridge Construction Techniques
- Advanced Project Scheduling and New Estimating Techniques
- Streamlining Environmental Permitting
- Single-Phase Construction
- Innovative Construction Contracting

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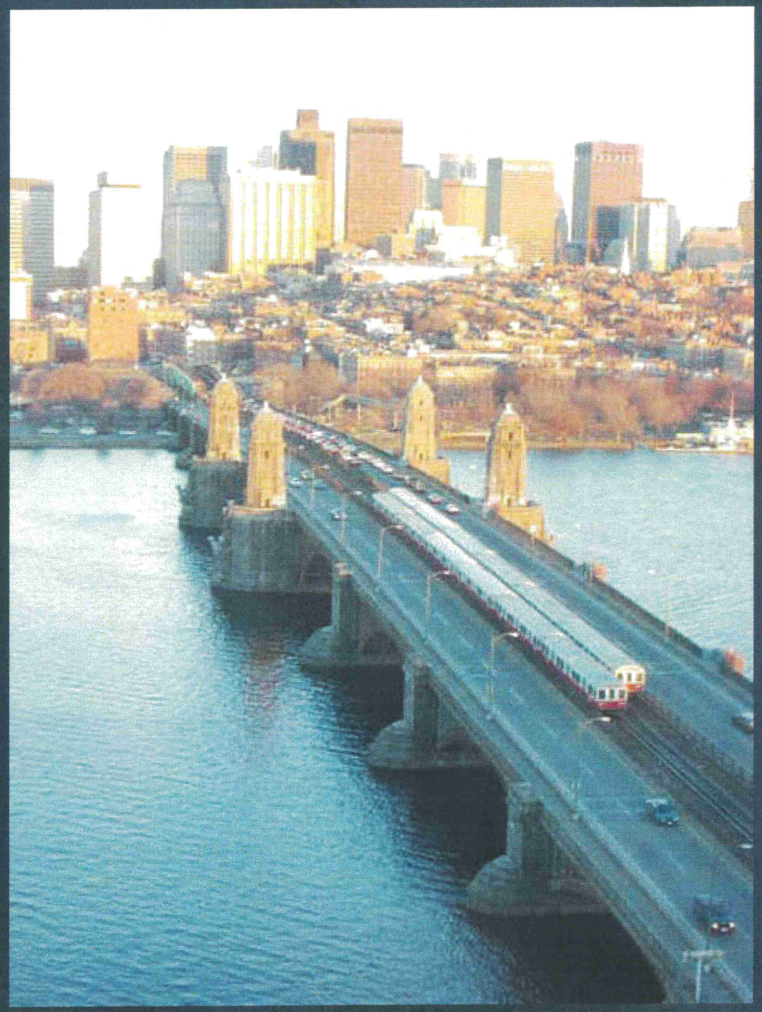
Longfellow Bridge Project

- MA Highway Department (MHD) and MA Department of Conservation and Recreation (DCR)
- Project Purpose & Goals
  - » *Repair Structure*
  - » *Improve Ramped Approaches*
  - » *Renovate Red Line Reservation*
  - » *Improve Lighting and Safety*
  - » *Retain Historic Character*
- **Federally Funded Project**



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Longfellow Bridge Users

- *Approx. 28,000 Vehicles*
- *90,000 Red Line Riders*
- *Significant Numbers of Pedestrians and Bicyclists*

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Longfellow Bridge Today

- 11 Original Steel Arch Spans
- 2,135 ft. Long
- 105 ft. Deck Width
- 27 ft. Median for Red Line
- 6 ft. Sidewalk Upstream
- 10 ft. Sidewalk Down Stream
- Granite Block Substructure
- 10 Hollow Piers
- 2 Hollow Abutments
- Last Major Renovation-1959

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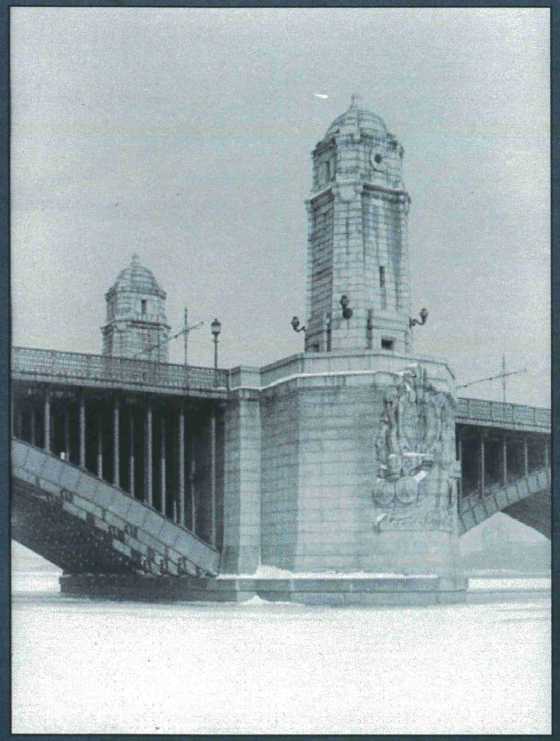
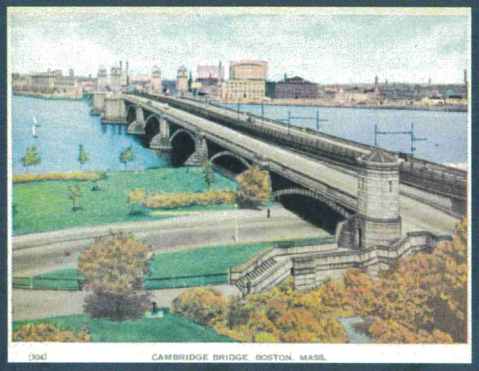
Historic Longfellow Bridge



Detail of central pier tower

February 20, 1913

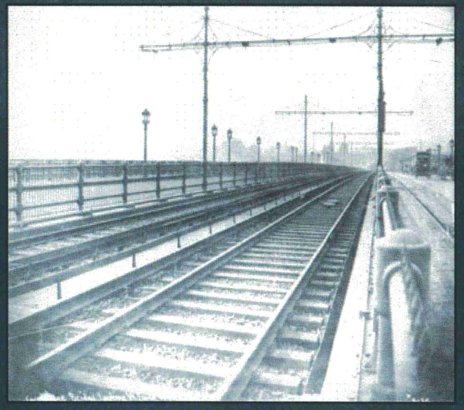
Source: courtesy of Historic New England



Longfellow Bridge, looking towards Cambridge, showing the Boston abutment, Postcard

Circa 1929

Source: courtesy of Historic New England



Detail of finished Boston Elevated Railway tracks over the Longfellow Bridge, showing original lamp standards

January 21, 1912

Source: courtesy of Historic New England

Aerial view showing Charles Circle in Boston, Longfellow Bridge, and Cambridge in background,

March 10, 1932

Source: courtesy of Historic New England

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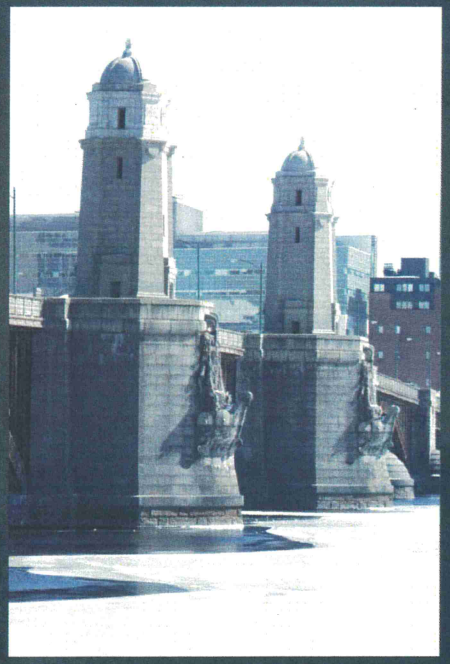
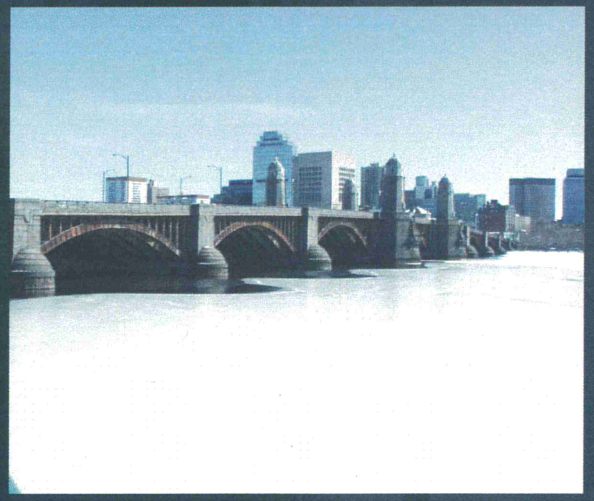
Views of the Longfellow Bridge





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Longfellow Bridge Challenges

- Boston Approach Alternatives
  - » *Alternative 1*
  - » *Alternative 2*
  - » *Alternative 3*
- The Public Process
- Access and Traffic Management
- Construction Impacts

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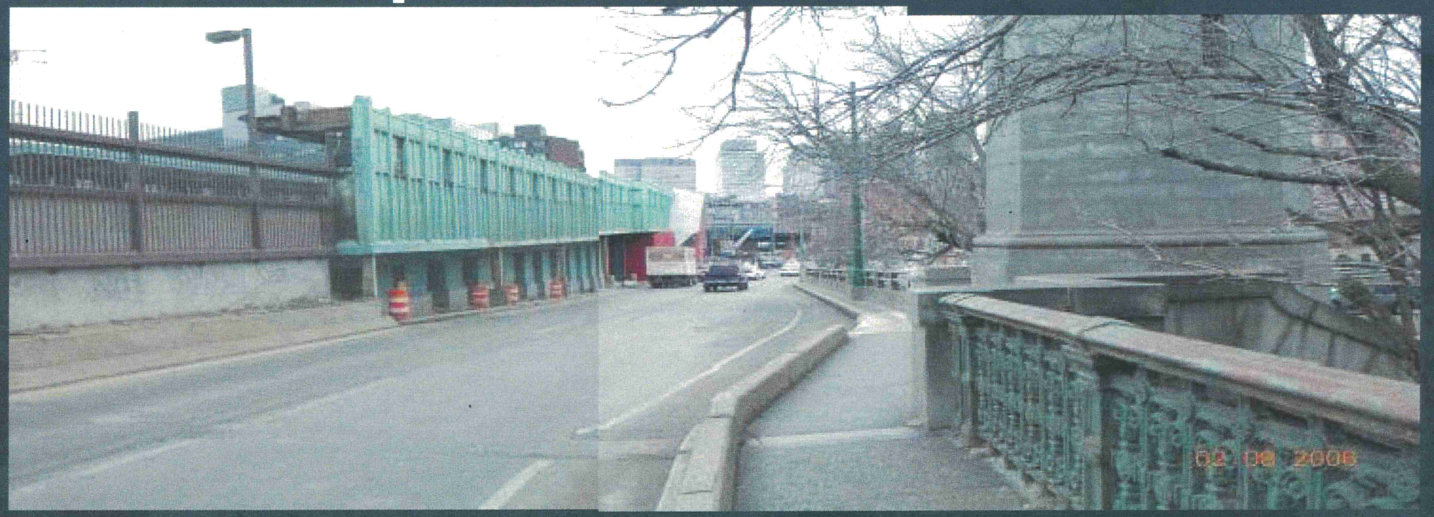
Boston Approach
Upstream Pinch Point



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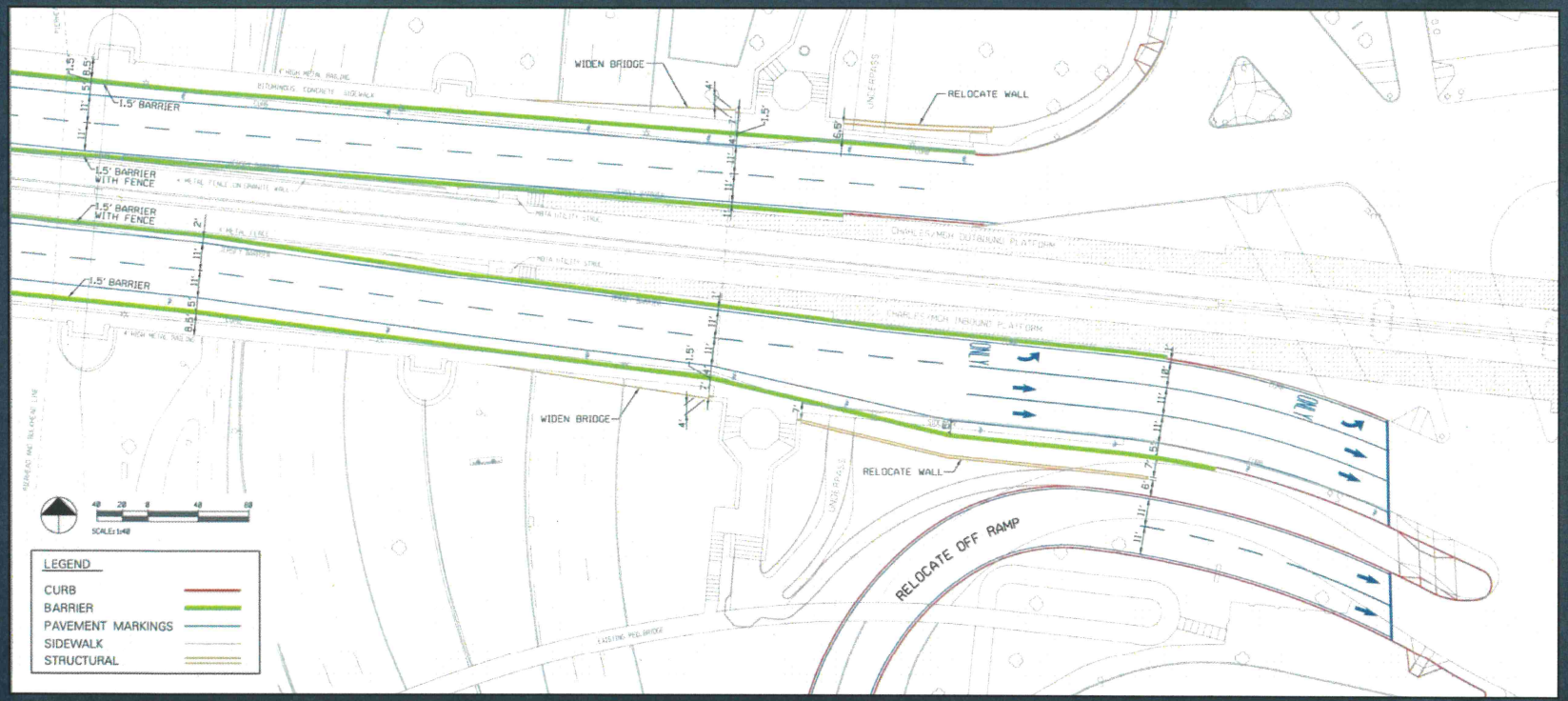
Boston Approach - Alternate 1

JACOBS



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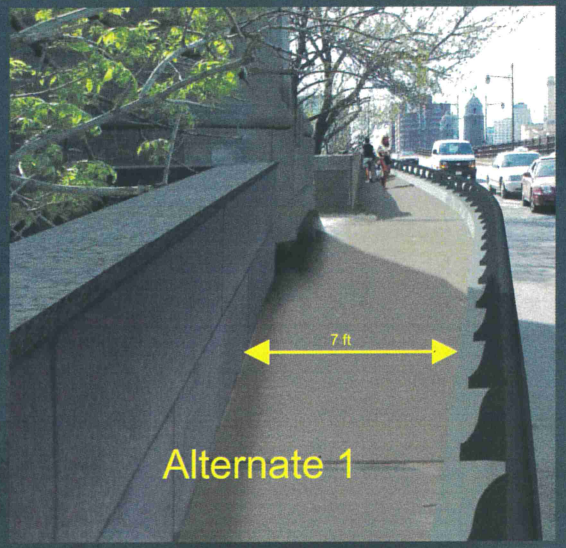
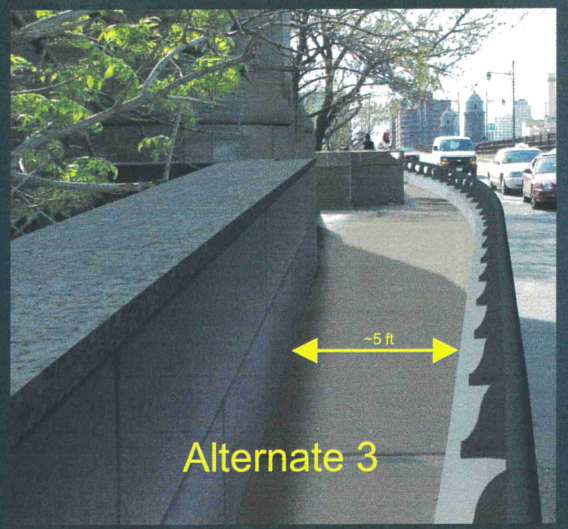
Boston Approach: Photo-Visualization





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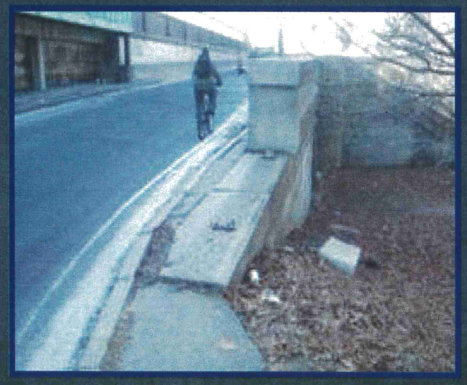
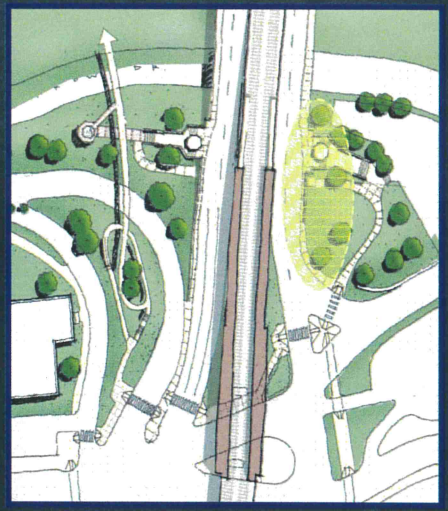
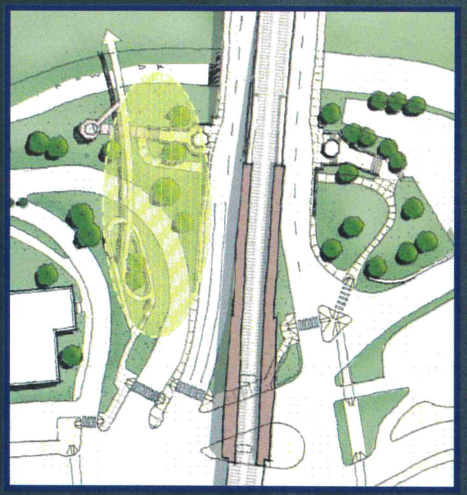
Connections – Boston side

JACOBS

- Shoulder Disappears
- No Accessible Route
- Debris
- Vehicle/Bicycle Conflicts







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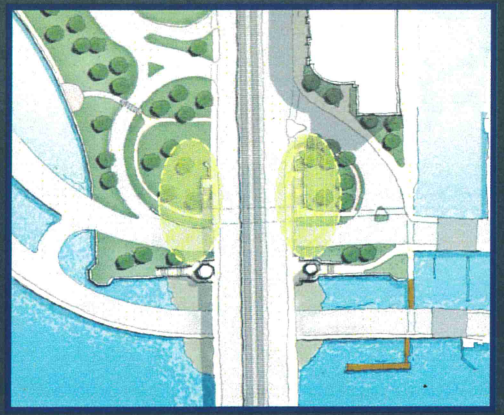
Connections – Cambridge side

JACOBS

- Stairs lead to isolated area

- Stairs are
  - » *under-utilized*
  - » *historically inappropriate*
  - » *in poor repair*



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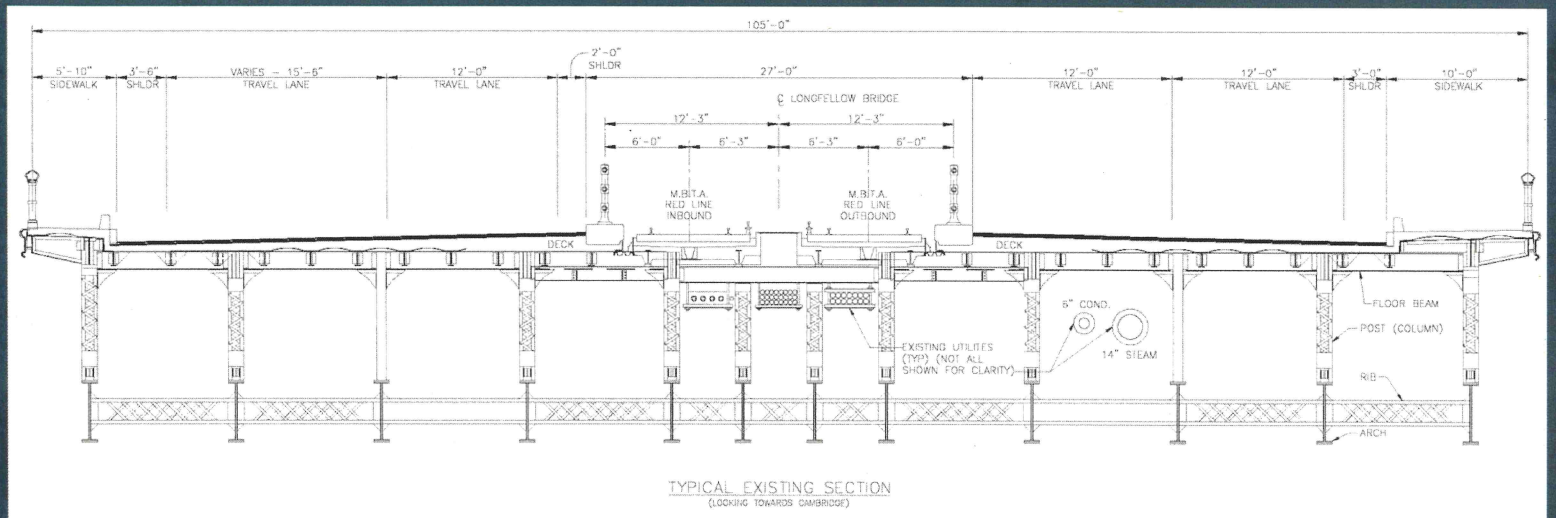
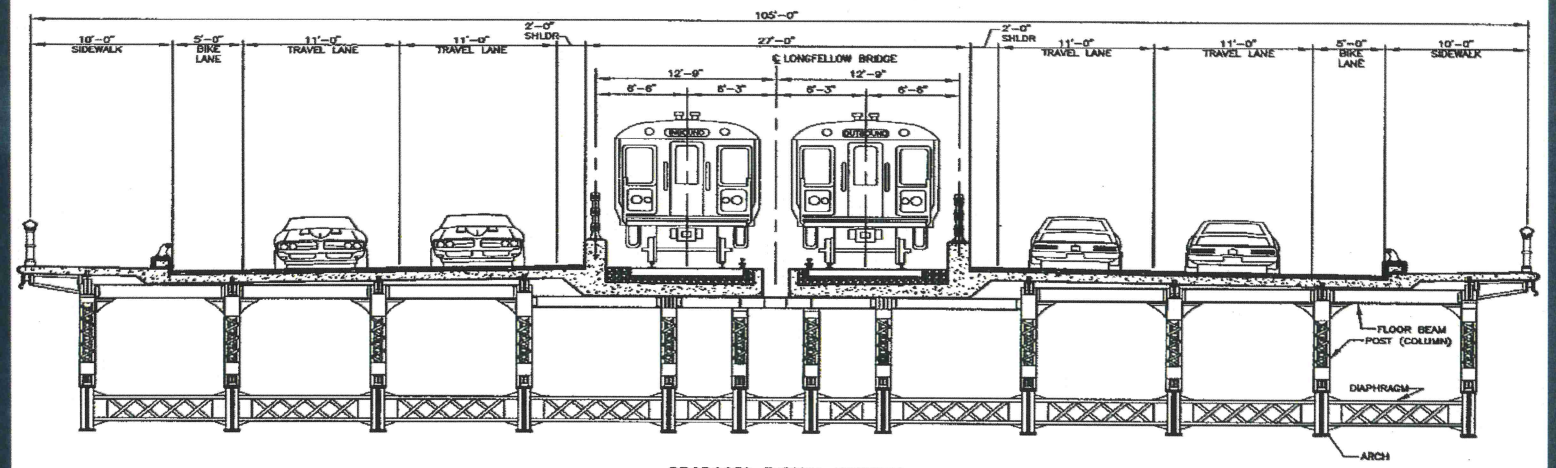
Typical Bridge Cross Section

JACOBS



TYPICAL EXISTING SECTION
(LOOKING TOWARDS CAMBRIDGE)



PROPOSED TYPICAL SECTION
(LOOKING TOWARDS CAMBRIDGE)

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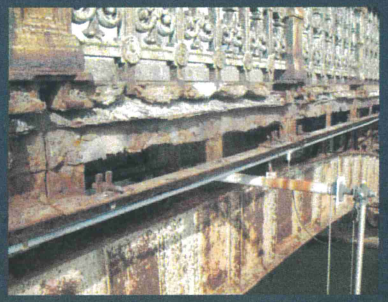
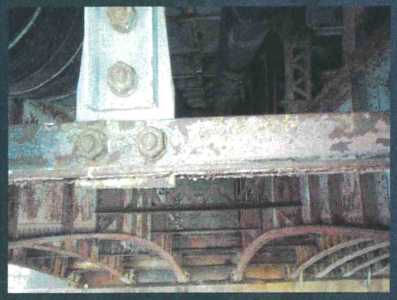
Structural Deterioration





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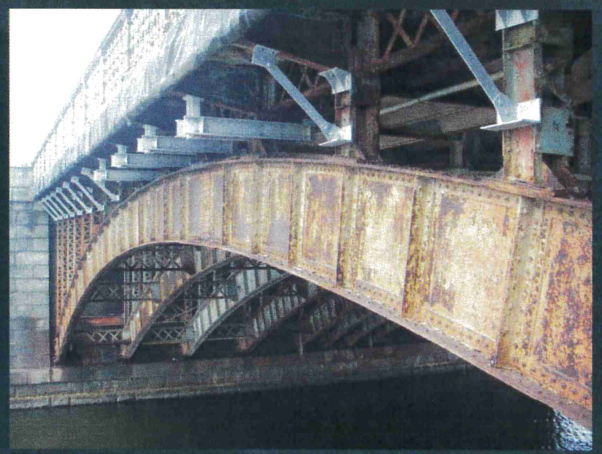
Ongoing Temporary Repairs



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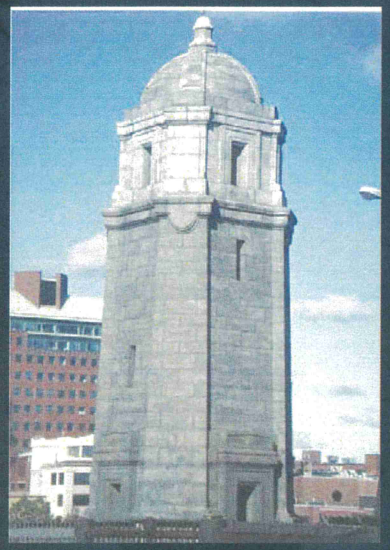
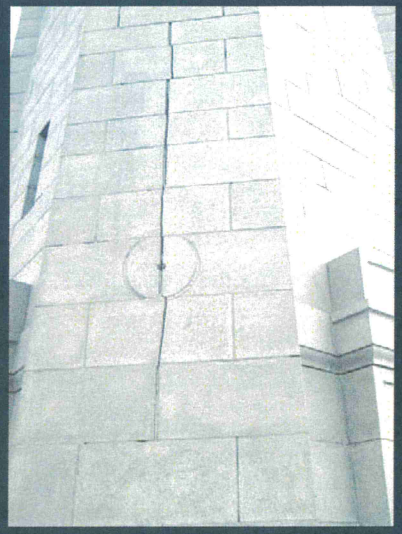
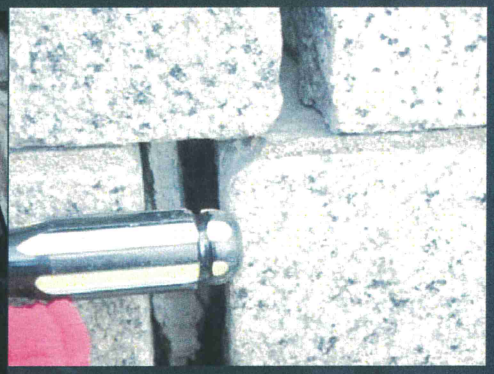
Masonry Towers







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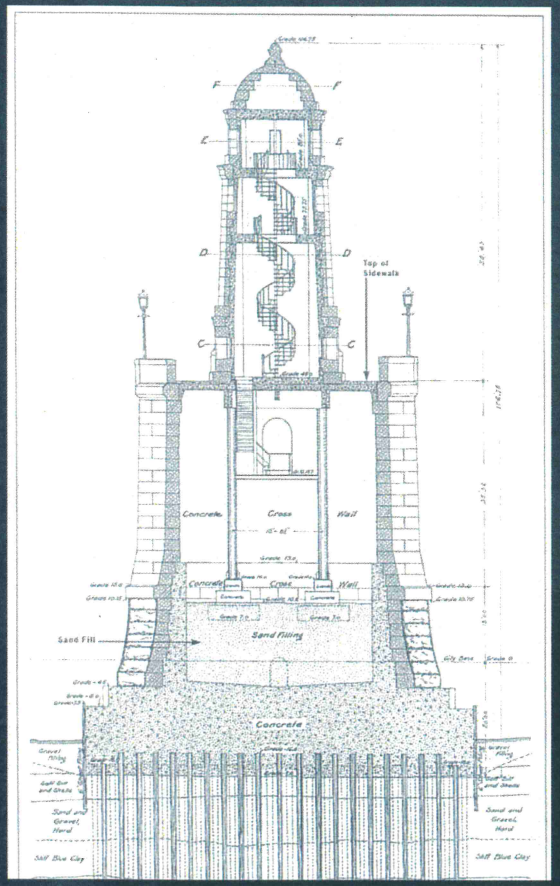
Tower Repair Alternatives



3 Repair Options

1. Dismantle and Re-build

2. Repair in Place

3. Partial Dismantle/Re-build

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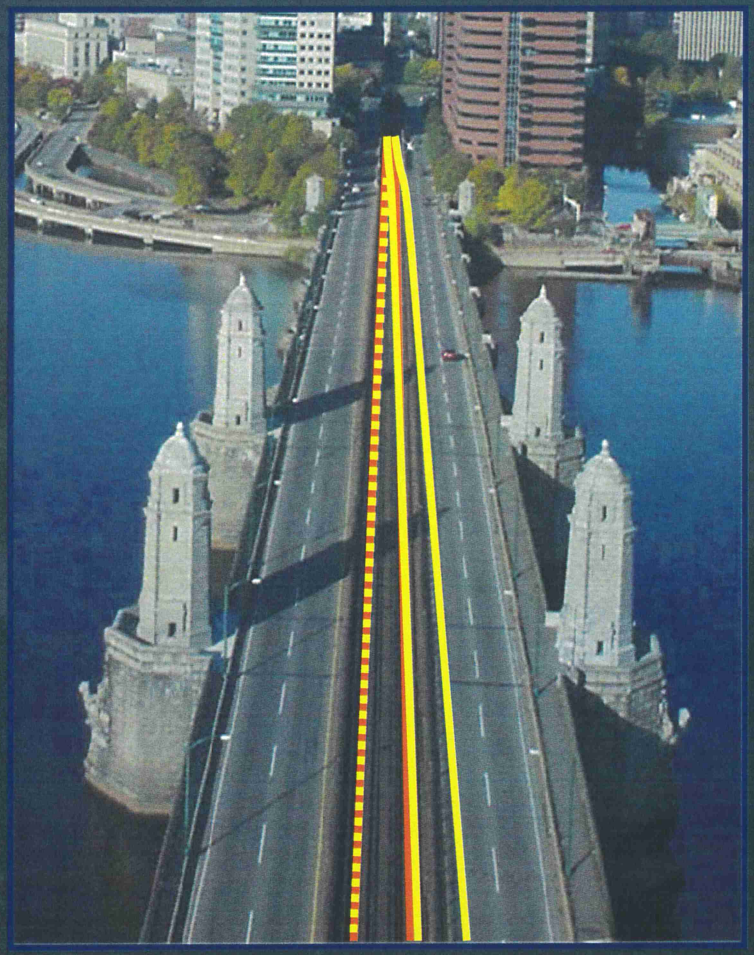
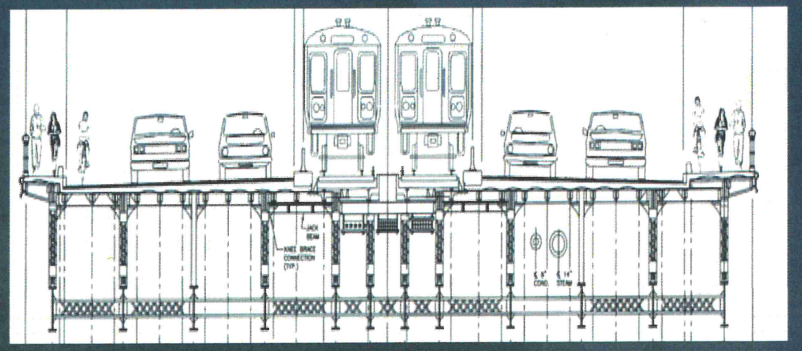
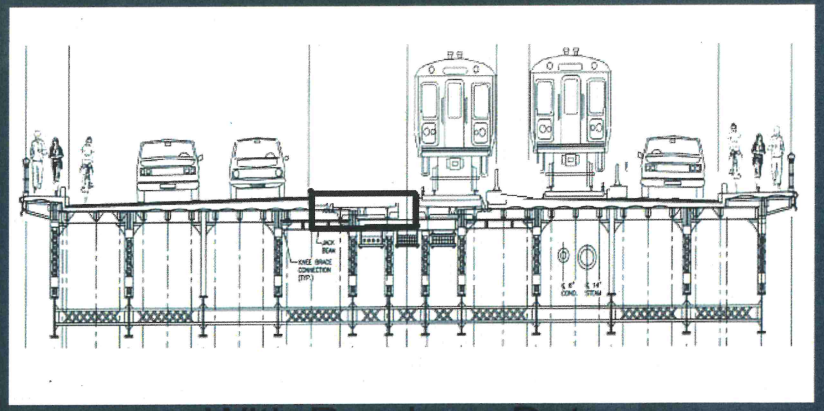
Maintenance of Red Line Operations

Alternative 1 - T Roadway Detour (Shoofly)





Normal Conditions



With Roadway Detour

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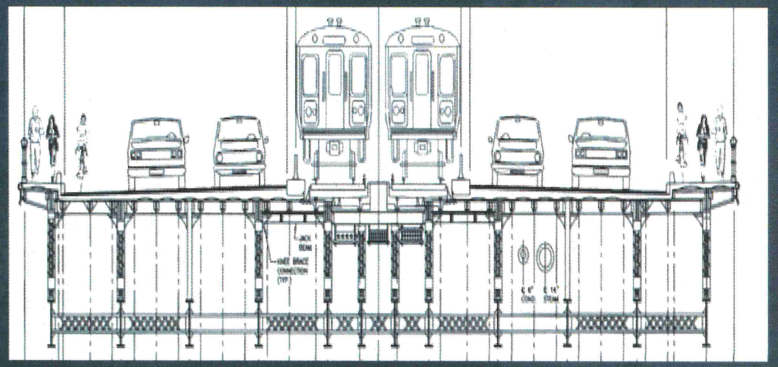
Maintenance of Red Line Operations

Alternative 2 - In-Place "Rapid" Construction



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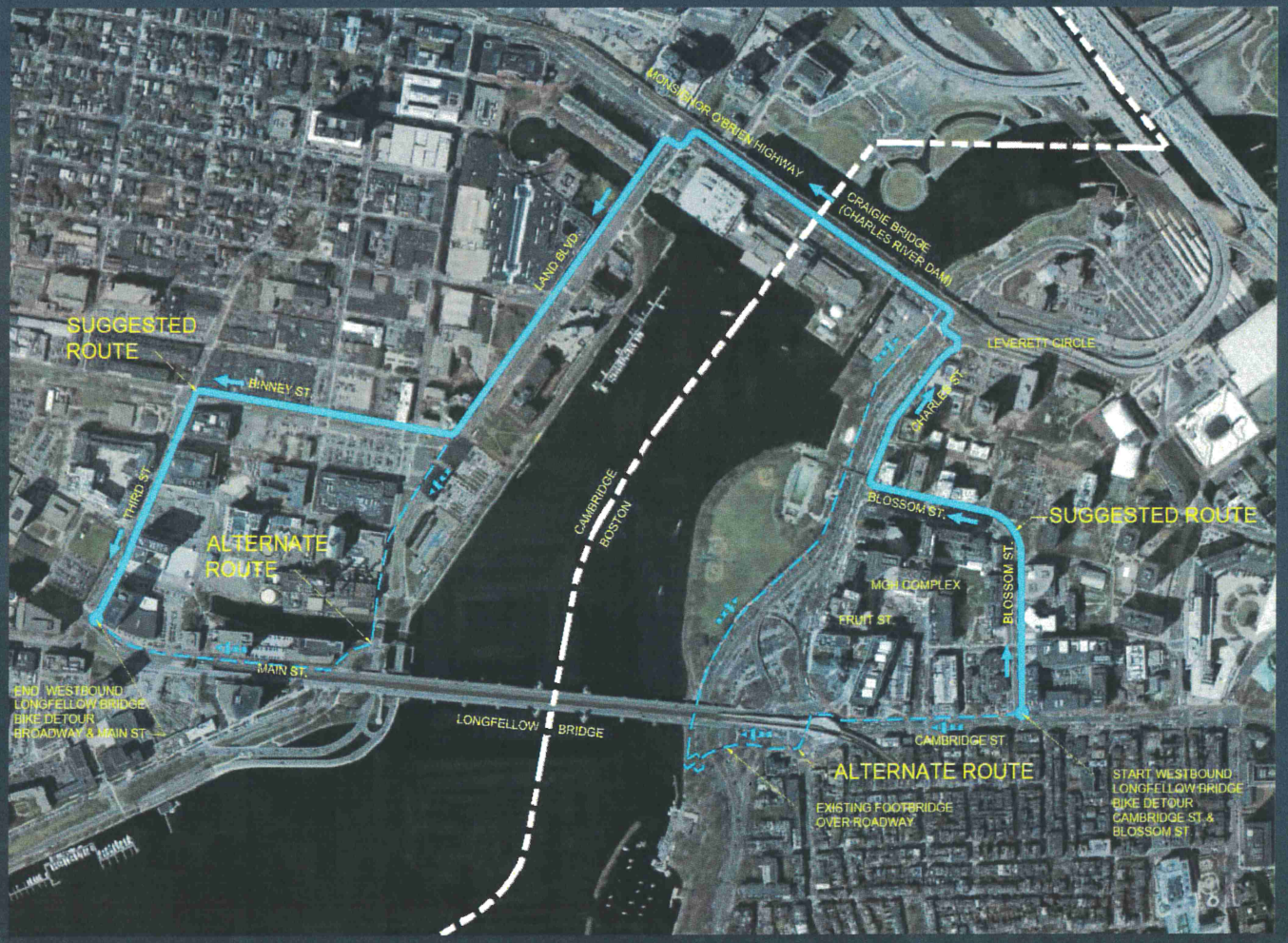
Westbound Bicycle Detour



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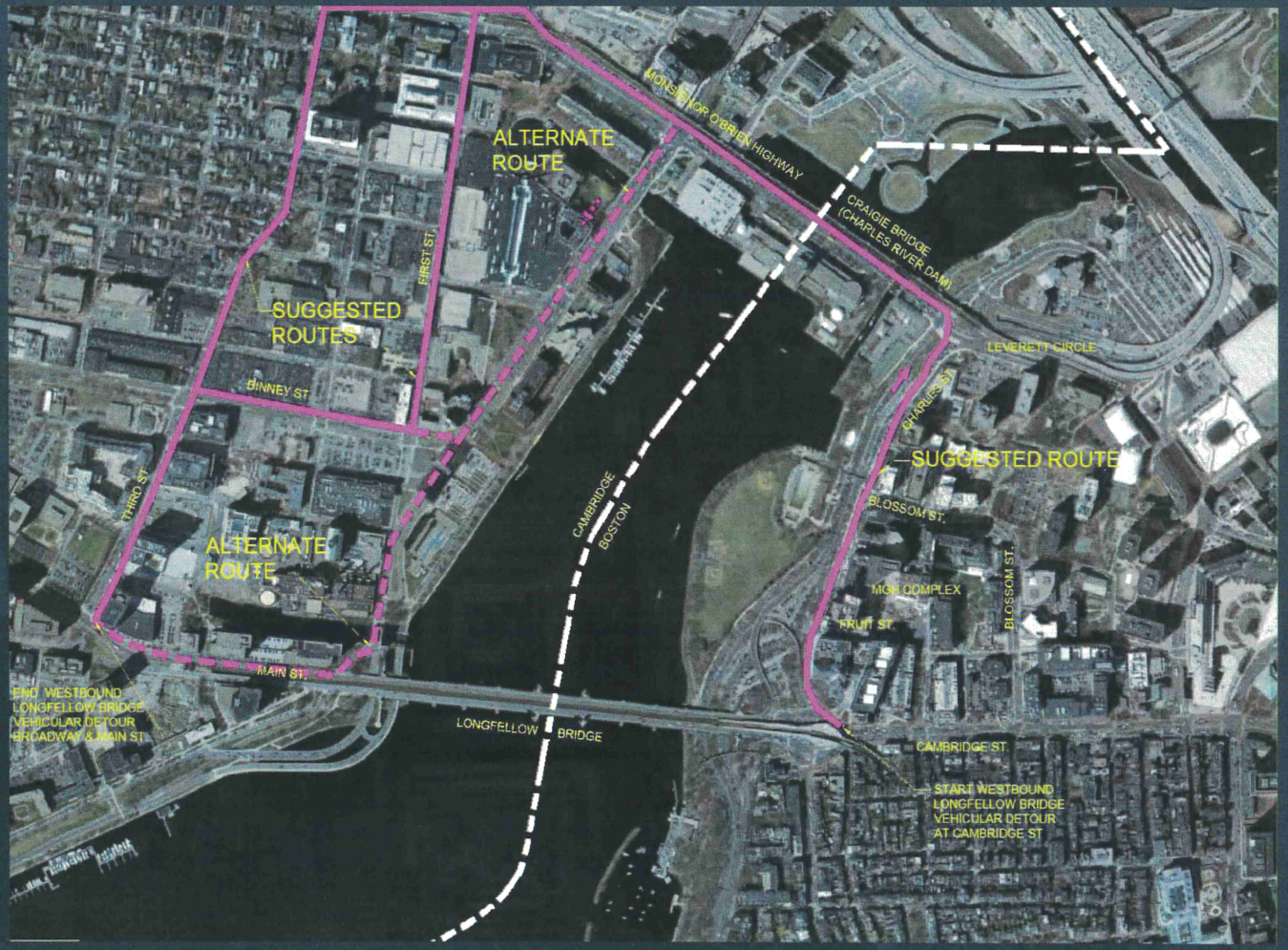
Westbound Vehicular Detour



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Longfellow Bridge Schedule

- Preliminary Design June 2005 – May 2009
- Final Design June 2009 – July 2010
- Construction:
- Early Action Preservation Contract Fall 2009
- Request for bids Fall 2010
- Construction 2011 – 2014
- Surveys, borings and inspections Fall 2005/Winter 2006
- Stakeholders and Public Meetings September 2005 – 2010
- Environmental Notification Form March 16, 2009
- Section 106 review (National Historic Preservation Act) September 2005 – Ongoing

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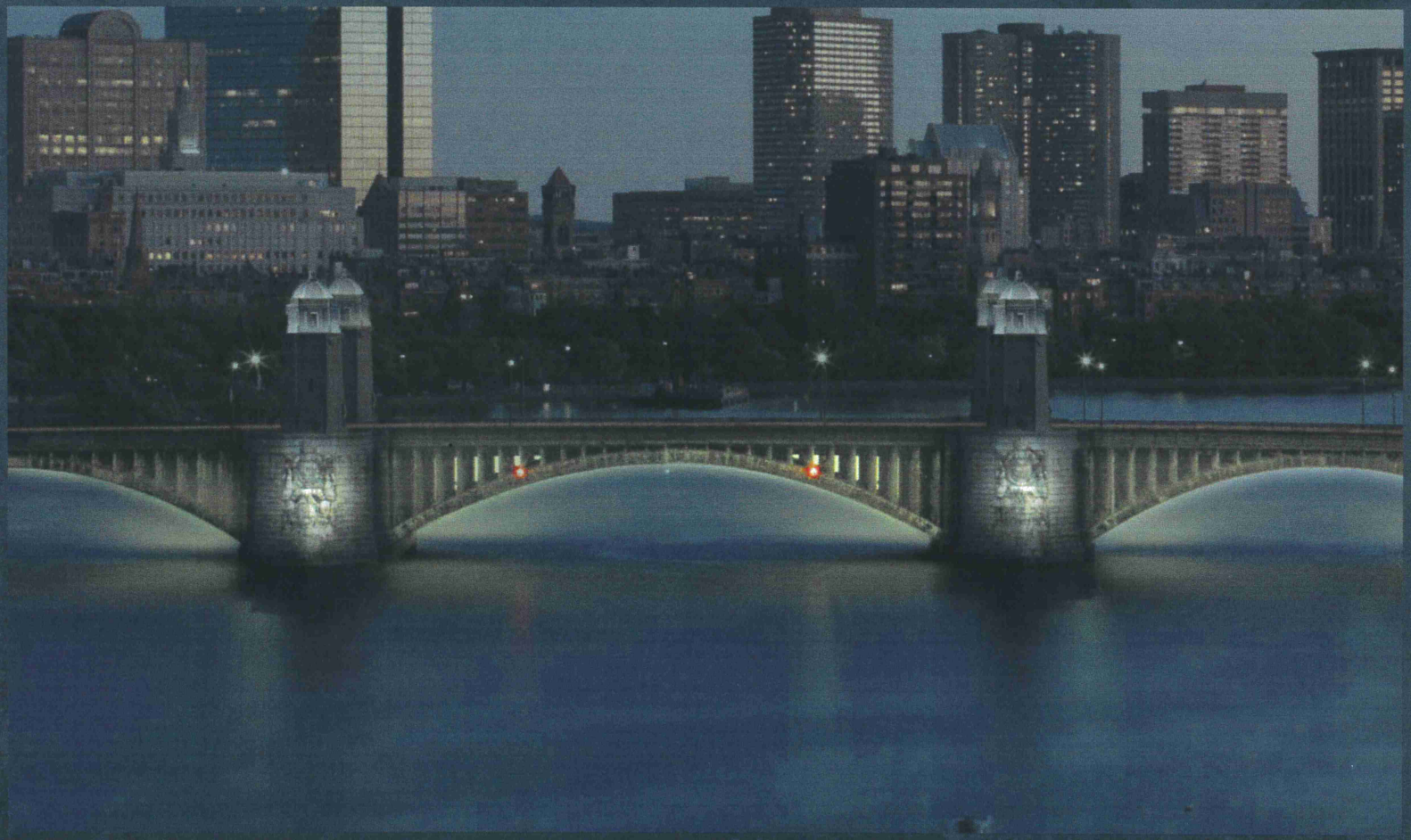
QUESTIONS



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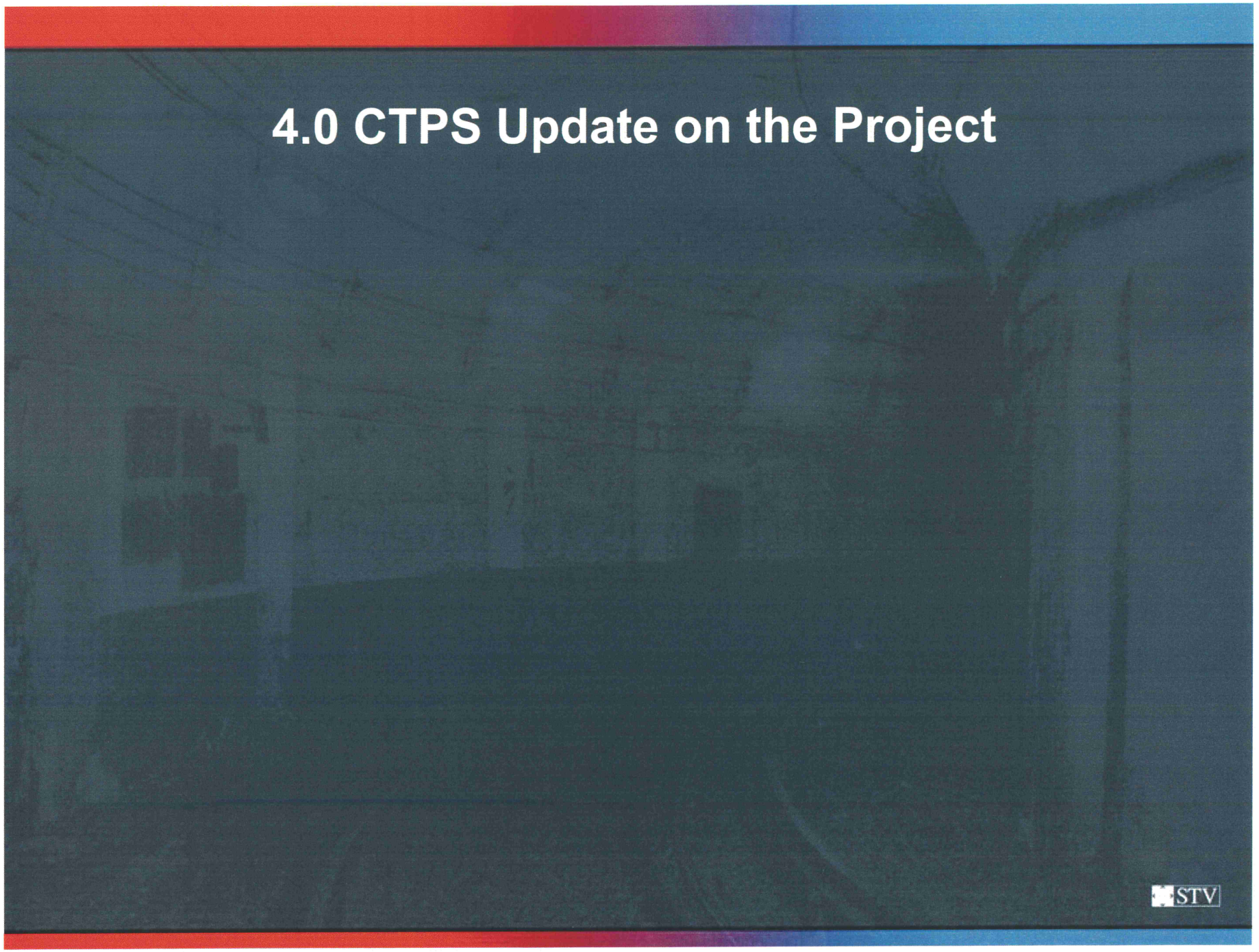
4.0 CTPS Update on the Project



4.0 CTPS Outline

- CTPS Project Update
- Calibration of Base Year
- Modeling Outputs
- Existing Conditions Analysis
- Future Year Assumptions
- No-build Analysis

- *Presented by Scott Peterson, Central Transportation Planning Staff*
  Manager of the Transportation Systems Analysis Group
  10 Park Plaza, Suite 2150
  Boston, MA 02116
  617-973-7078 or scottp@ctps.org

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4.1 CTPS Project Update

What has been done?

2008 Base Year Calibration

Model run complete, outputs analyzed

2030 No-build Analysis

Model run complete, outputs analyzed

What is Outstanding?

2030 Alt. 1 (Red / Blue Connector minus Bowdoin)

Model run underway, analysis forthcoming

2030 Alt. 2 (Red / Blue Connector with Bowdoin)

Model run underway, analysis forthcoming

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4.2 Calibration / Validation of the Base Year

What Tool is Being Used?

The CTPS Regional Travel Demand Model Set

Using the new fare structure, parking fees, and shuttles

What is Calibration?

It is the process of estimating the parameters of the model in order to make sure it is replicating travel behavior on the highway and transit modes as accurately as possible.

What is Validation?

It is the process of applying the model and comparing model outputs to real world data to see how well it is matching.

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4.3 Modeling Output (examples)

Mode Choice

- Mode shares for walk, auto, and transit
- Linked transit trips (walk and drive)
- Auto occupancy rates

Transit

- Boarding and alightings by mode and time of day
- Transfers between transit modes
- Fare and parking revenue

Highway

- Traffic volumes by time period on major roadways
- Congested speeds on major roadways

Air Quality

- NOx, VOC, CO, and CO2

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4.4 Existing Condition Analysis

2008 Blue Line

- FY Annual Unlinked = 16,346,400
- Avg. Daily Boardings = 64,550
- Highest Inbound Daily Boardings = Maverick
- Highest Outbound Daily Boardings = Govt Ctr
- Station with highest number of daily transfers = Govt Ctr
- Station with the highest number of drive trips = Wonderland
- 65% who start their trip on the Blue Line exit at a Blue Line Station
- 10% who start their trip on the Blue Line exit at a Red Line Station
- 17% who start their trip on the Blue Line exit at a Green Line Station

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4.5 Existing Condition Analysis

2008 Red Line

- FY Annual Unlinked = 68,560,600
- Avg. Daily Boardings = 242,900
- Highest Inbound Daily Boardings = Harvard
- Highest Outbound Daily Boardings = Park St
- Station with highest number of daily transfers = Park St
- Station with the highest number of drive trips = Quincy Adams
- 78% who start their trip on the Red Line exit at a Red Line Station
- 15% who start their trip on the Red Line exit at a Green Line Station
- 6% who start their trip on the Red Line exit at a Orange Line Station

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4.6 Future Year Assumptions

Land Use

TAZ	Employment		Population	
	2000	2030	2000	2030
1	909	937	622	646
2	4,300	7,300	252	706
3	5,307	5,489	51	865
4	2,267	3,156	1	1,206
21	1,665	1,640	3,343	4,072
22	14,358	14,232	-	24
23	179	2,154	28	40
24	1,259	2,170	238	248
25	209	196	2,005	2,013
27	248	239	2,480	2,547
28	607	587	2,118	2,126
29	2,355	2,300	87	116
30	900	876	1,112	1,117
31	1,458	1,425	147	160
32	3,083	3,018	42	66
33	3,418	3,348	3	13
34	1,846	1,799	388	764
35	5,410	5,286	-	24
36	6,080	6,036	406	478
Study Area	55,857	62,188	13,323	17,231

Source: 2007 Adopted Land Use from MAPC

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4.7 Future Year Assumptions

2030 Transportation Network

Source: Projects included in the most current Boston MPO Regional Transportation Plan (RTP)

Transit Projects

- Green Line Extension to Medford
- Fairmount Commuter Rail Additional Stations
- SIP Parking Expansions and Wonderland Parking Expansion
- Excludes – Urban Ring Phase 2, Silver Line Phase III, and Blue Line to Lynn

Highway Projects

- Please refer to the RTP

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4.8 Future Year Assumptions

Service Characteristics

Line	Peak Period (min.)	
Station to Station Data Provided	Headway	Run Time
2009 Base - Blue Line: Wonderland to Bowdoin	5	20
2030 No-build - Blue Line: Wonderland to Bowdoin	5	20
2030 Alt 1. - Blue Line: Wonderland to Charles/MGH no Bowdoin	5	22
2030 Alt 2. - Blue Line: Wonderland to Charles/MGH	5	23

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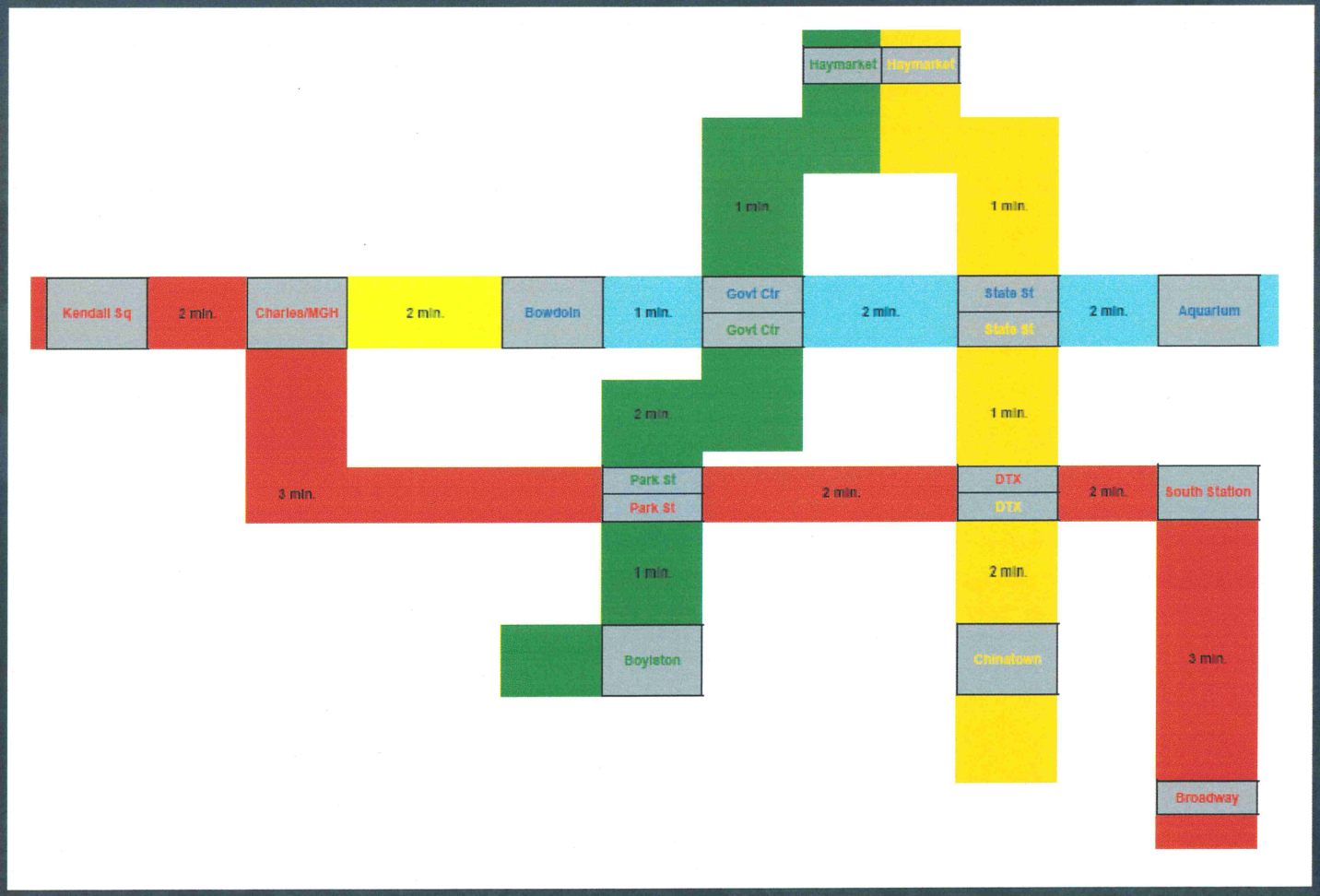
4.9 Future Year Assumptions

Peak Period Connectivity



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4.10 No-Build Analysis

Growth from 2010 to 2030

Linked Transit Trips Increase by 9%

Unlinked Transit Trips Increase by 12%

Commuter Rail Increases by 23%

Blue Line Increase by 13%

Red Line Increases by 4%

Green Line Increase by 17%

Vehicle Miles of Travel Increase by 17%

Average Travel Time Increases by 6%

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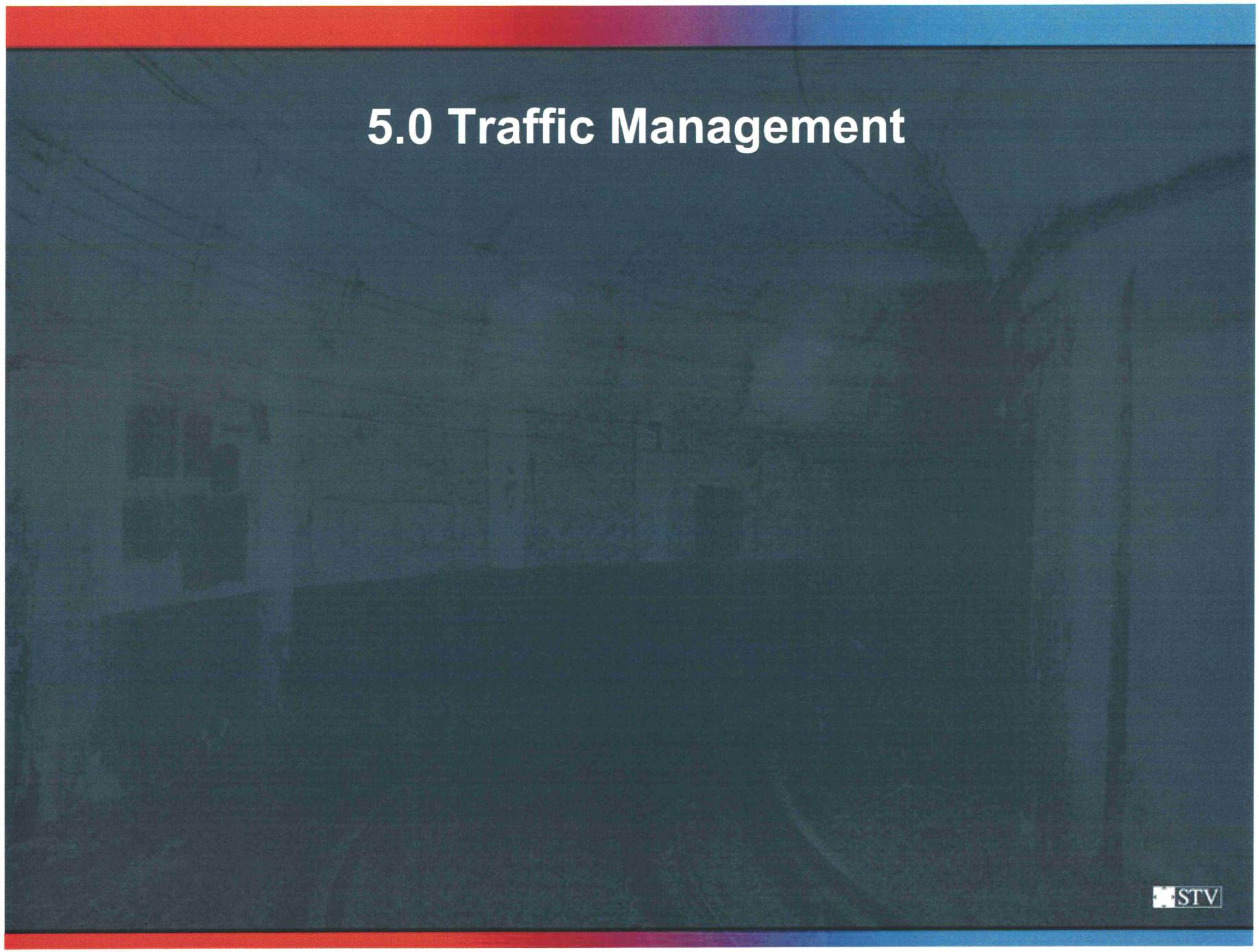
5.0 Traffic Management



Traffic Management Plan

1. Detour Routes
2. Truck Routes
3. Decking Support Installation/ Utility Relocations
4. MGH Station Area Traffic Decking/ Tunnel Boring Machine (TBM) Installation
5. Bowdoin/ Government Center Station Area Traffic Decking/ TBM Extraction

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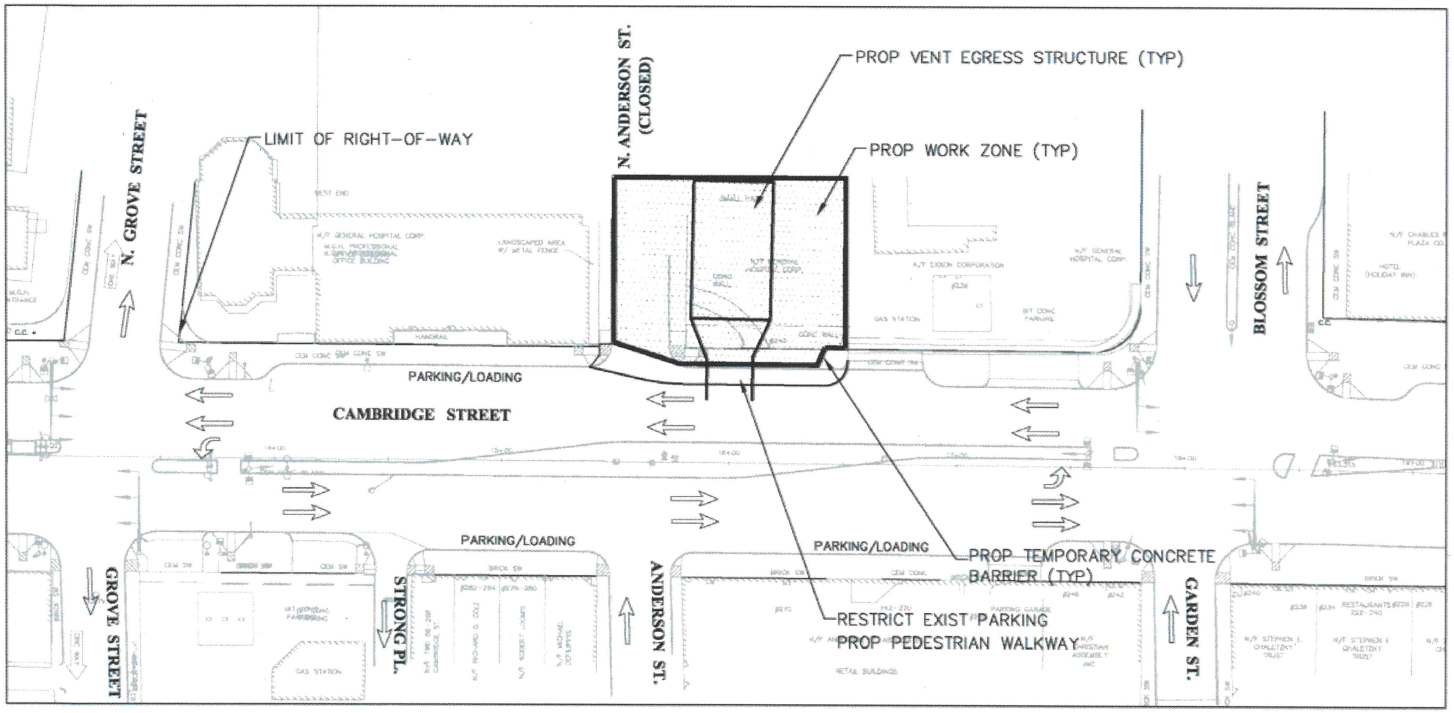
Decking support installation/Utility relocations:

- This work will be accomplished utilizing full-time moving work zones along the existing curb and sidewalk locations. Two through lanes plus turning lanes will be provided during peak traffic periods. Temporary single lane off-peak traffic period lane reductions and pedestrian route alterations will also be necessary to complete this work.

STV

Fan Room and Egress Installation:



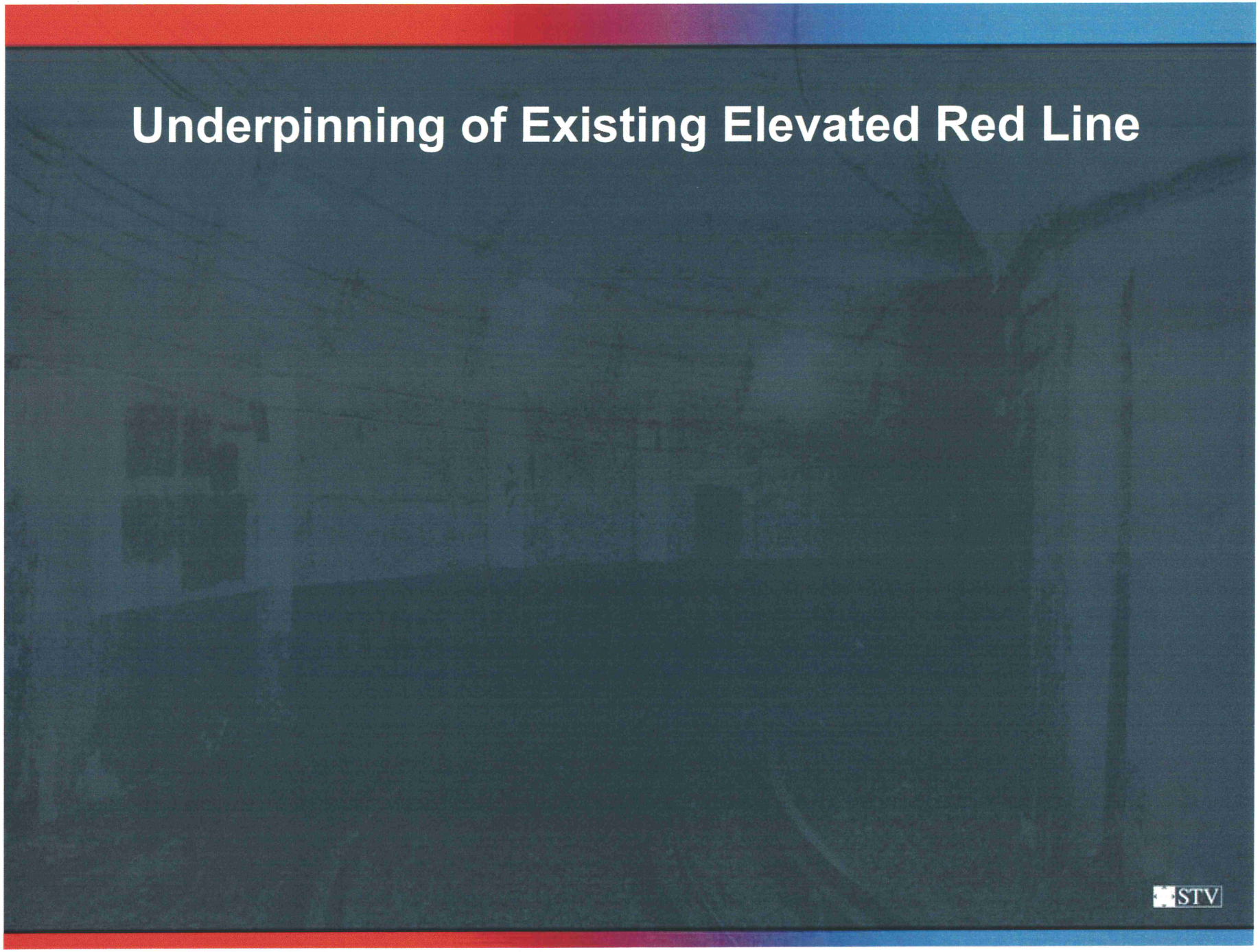
Vanasse Hangen Brustlin, Inc.

Figure 1 of 1 September 2009

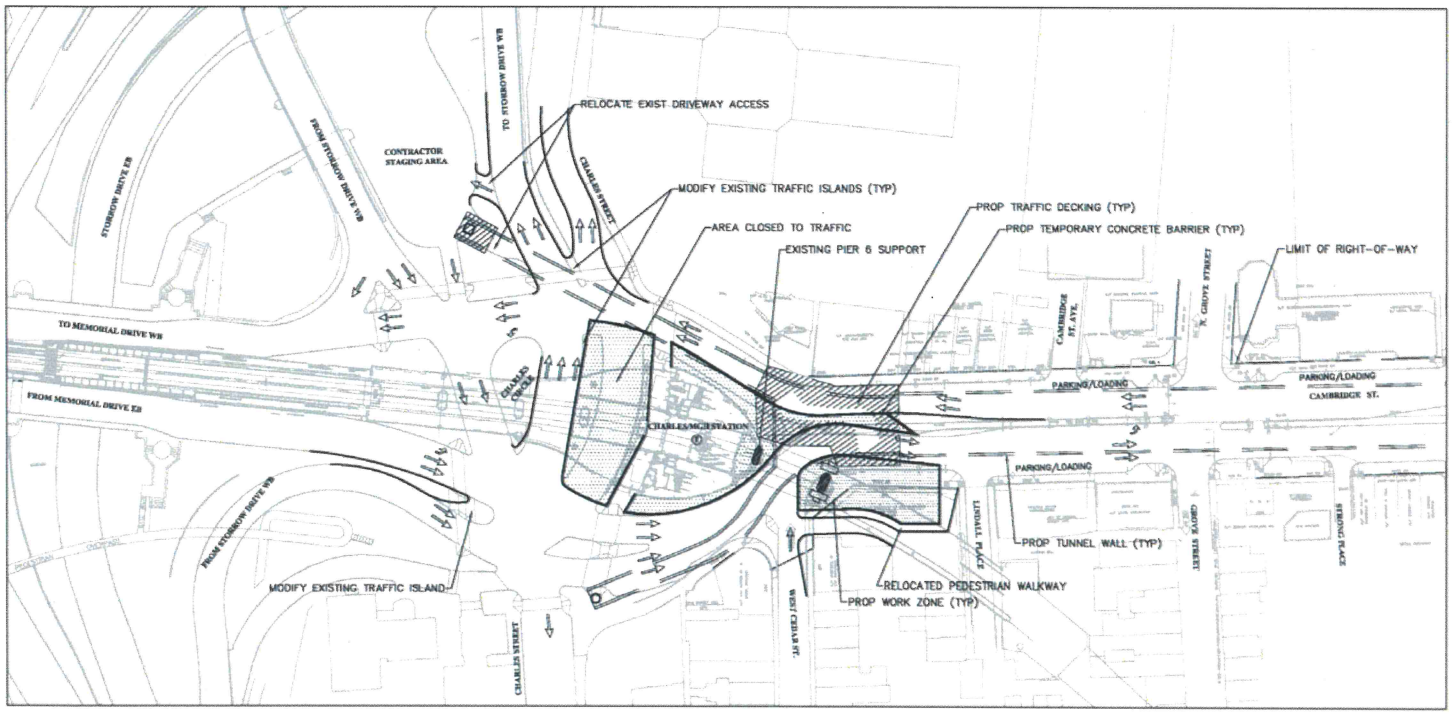
Red Line/ Blue Line Extension
Traffic Staging Plan - DRAFT
Phase 1x thru Phase 4
Vent/Emergency Egress Structure

STV

Underpinning of Existing Elevated Red Line



MGH Station Area Pier 7 Underpinning



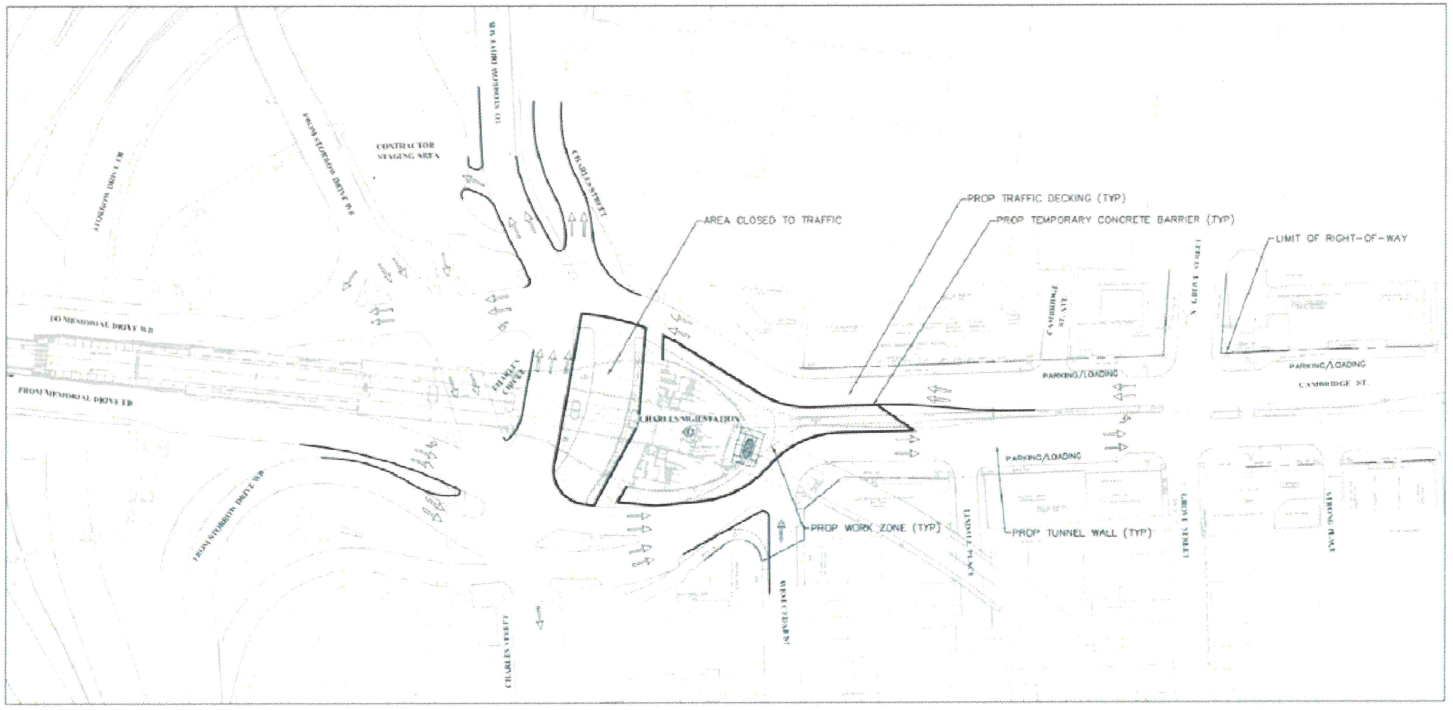
Vanasse Hangen Brustlin, Inc.

Figure 1 of 3 September 2009

Red Line/ Blue Line Connector
Traffic Staging Plan - DRAFT
Phase 1-3
Pier 7 Reconstruction

STV

MGH Station Area Pier 6 Underpinning Traffic Decking/ Tunnel Boring Machine (TBM) Installation:



Vanasse Hangen Brustlin, Inc.

Figure 2 of 3 September 2009

Red Line/ Blue Line Connector
Traffic Staging Plan - DRAFT
Phase 1-4 thru Phase 4

STV

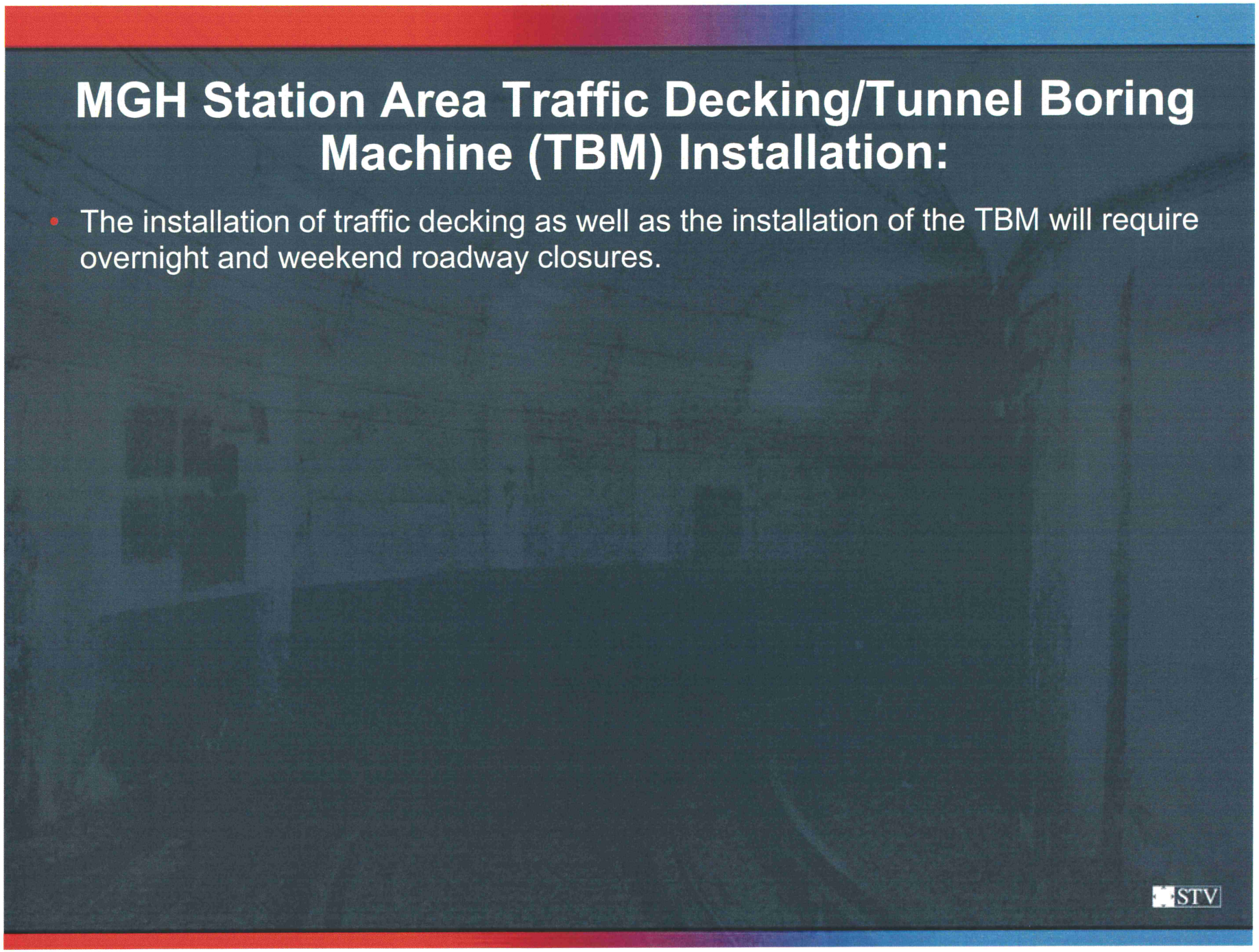
Truck Routes:

- Trucks that are inbound to the project site from I-93 would exit to Leverett Circle. These vehicles would continue onto Nashua Street and which becomes Lomasney Way in the vicinity of the TD Garden. Access to project area would then be provided via Staniford Street.
- Outbound trucking routes would be provided from Cambridge Street via New Sudbury and Sudbury Streets with access to I-93 from the Metropolitan Highway System ramps in the MBTA Haymarket Station area. An alternate outbound route is Charles Street NB to Leverett Circle.

STV

MGH Station Area Traffic Decking/Tunnel Boring Machine (TBM) Installation:

- The installation of traffic decking as well as the installation of the TBM will require overnight and weekend roadway closures.

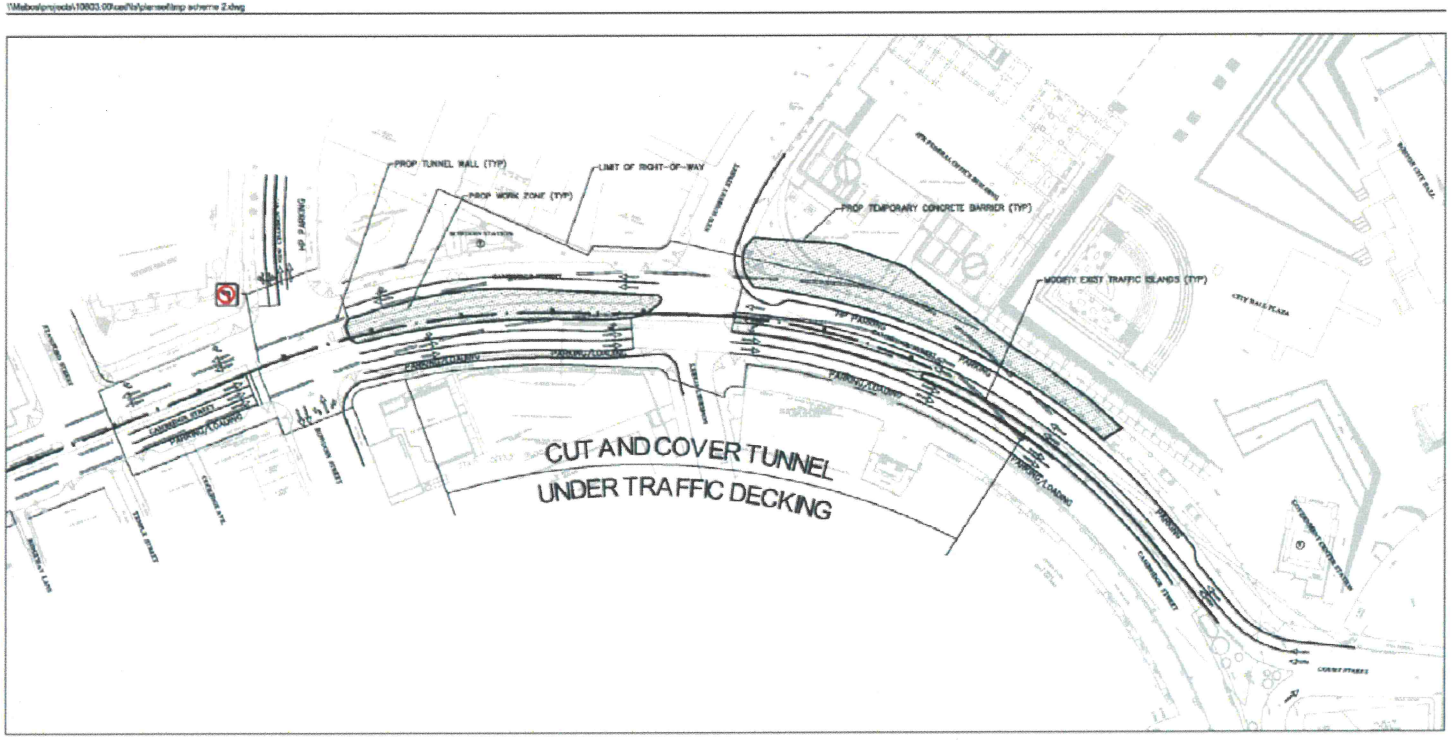


Detour Routes:

- For Cambridge Street WB (outbound): Close and detour traffic at Staniford Street. Traffic will follow Staniford Street, left onto Lomasney Way at Causeway Street in the vicinity of the TD Garden which becomes Nashua Street to Leverett Circle. From Leverett Circle access is provided to I-93, Route 1 and Storrow Drive westbound. Access to Charles Circle, Charles Street and Memorial Drive will be routed right onto Route 28 from Leverett Circle and left onto Land Boulevard. This route provides access to allow down Cambridge Street WB to N. Grove Street.
- For Cambridge Street EB (inbound): Close Cambridge Street eastbound access at Charles Circle. Cambridge Street traffic will be diverted onto Charles Street northbound then right onto Blossom Street and Back to Cambridge Street.

STV

Bowdoin/Government Center Station Area Traffic Decking/TBM Extraction:


PROP TUNNEL WALL (TYP)
LIMIT OF RIGHT-OF-WAY
PROP WORK ZONE (TYP)
PROP TEMPORARY CONCRETE BARRIER (TYP)
MODIFY EXIST TRAFFIC ISLANDS (TYP)
CUT AND COVER TUNNEL
UNDER TRAFFIC DECKING
0 50 100 Feet

Vanasse Hangen Brustlin, Inc.

Figure 3 of 3 September 2009

Red Line/ Blue Line Connector
Traffic Staging Plan - DRAFT
Phase 1x thru Phase 4

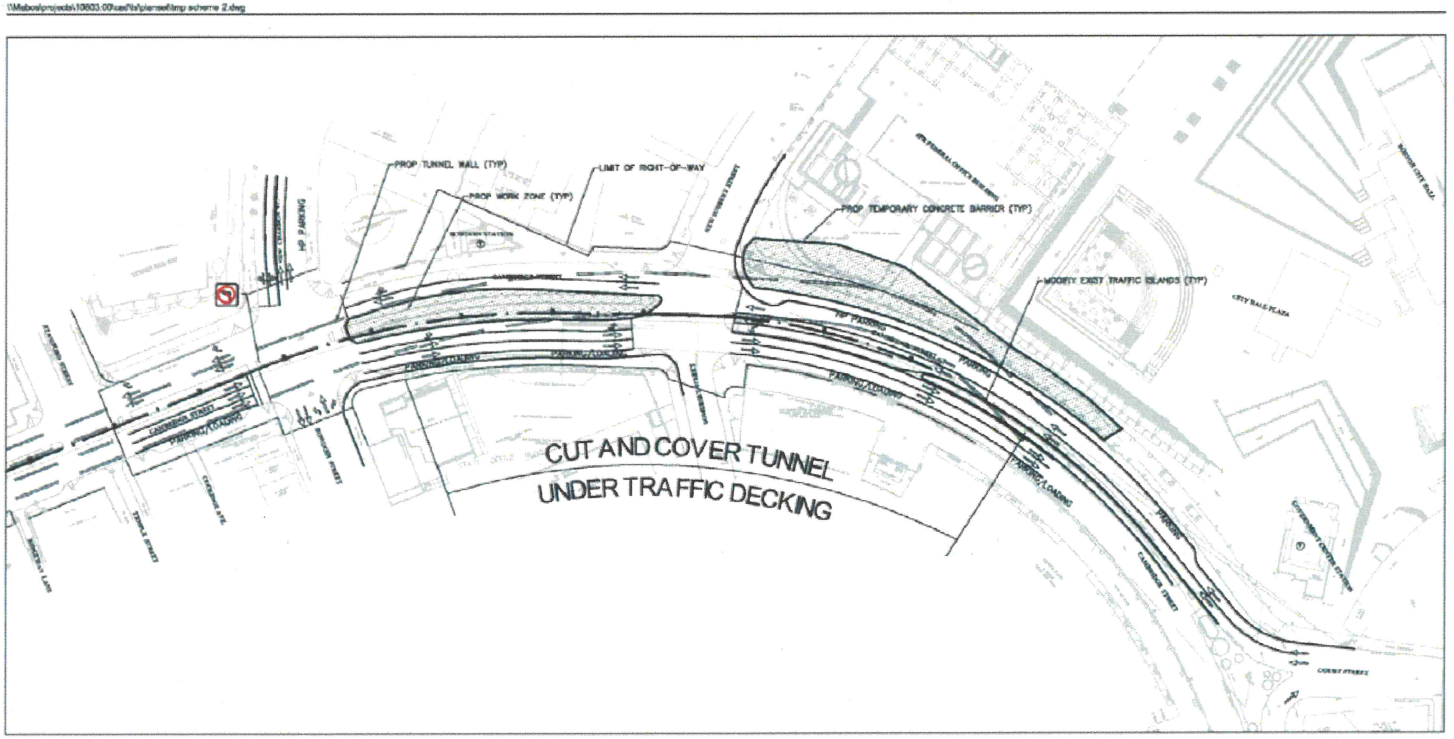
STV

Bowdoin/Government Center Station Area Traffic Decking/TBM Extraction:

- The installation of traffic decking as well as the extraction of the TBM upon completion of each of the proposed track tubes will require the implementation of a unique traffic pattern in the area bounded by New Chardon and Court Streets. Access will be maintained on Cambridge Street eastbound and westbound with detours for New Sudbury and New Chardon Streets implemented as necessary to complete the work. Access shall be maintained on either New Sudbury or New Chardon Streets at all times.

STV

Bowdoin/Government Center Station Area Traffic Decking/TBM Extraction:


PROP TUNNEL WALL (TYP)
LIMIT OF RIGHT-OF-WAY
PROP WORK ZONE (TYP)
PROP TEMPORARY CONCRETE BARRIER (TYP)
MODIFY EXIST TRAFFIC ISLANDS (TYP)
CUT AND COVER TUNNEL
UNDER TRAFFIC DECKING
0 50 100 Feet

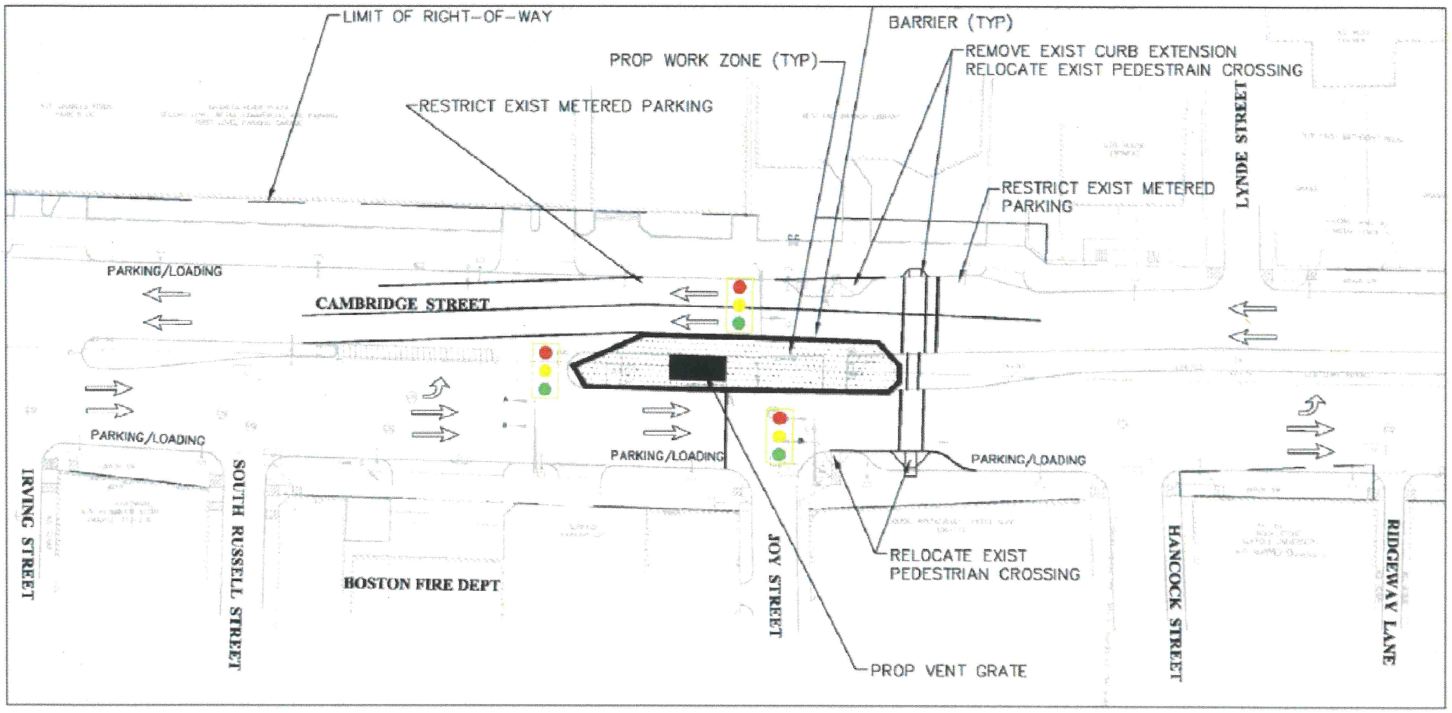
Vanasse Hangen Brustlin, Inc.

Figure 3 of 3 September 2009

Red Line/ Blue Line Connector
Traffic Staging Plan - DRAFT
Phase 1x thru Phase 4

STV

Ventilation Grate at Median:



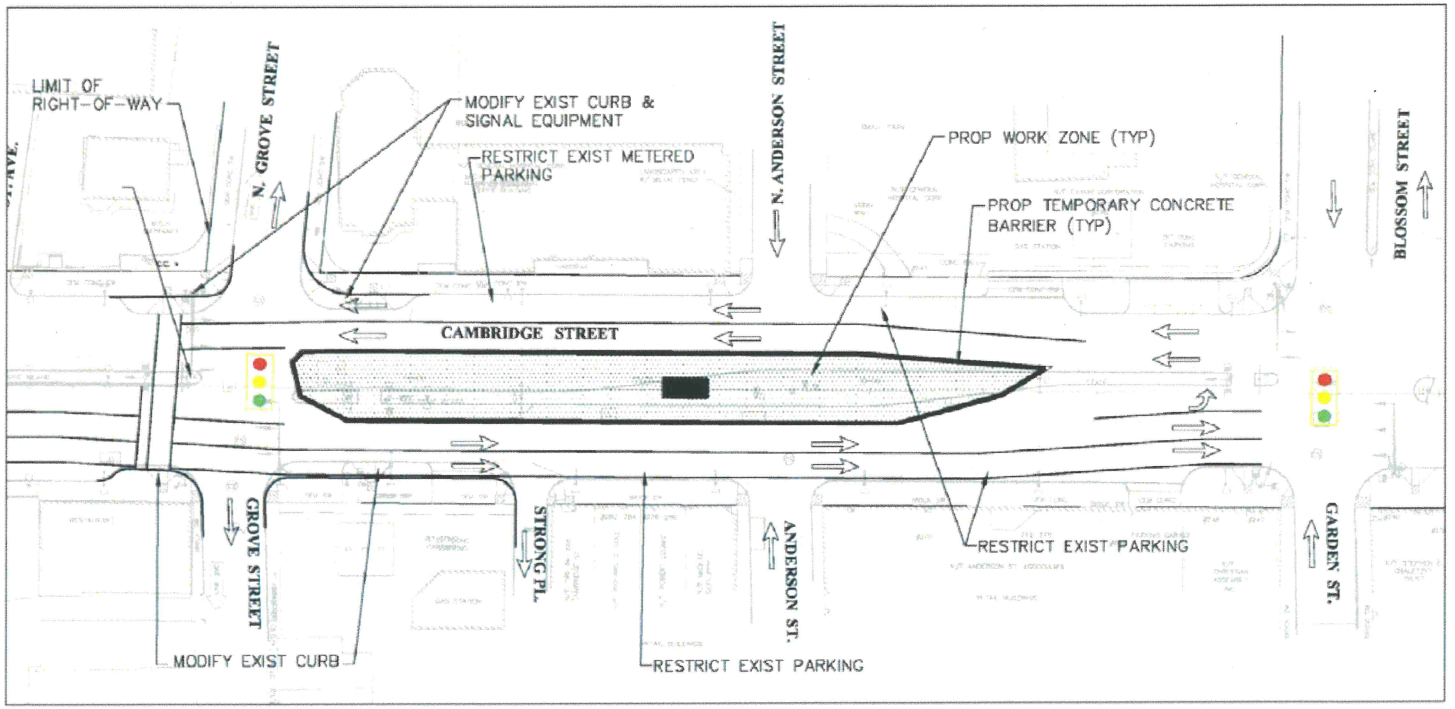
Vanasse Hangen Brustlin, Inc.

Figure 1 of 1 September 2009

Red Line/ Blue Line Extension
Traffic Staging Plan - DRAFT
Phase 4x
Proposed Vent Grate

STV

Egress Hatch at Grove Street Construction:



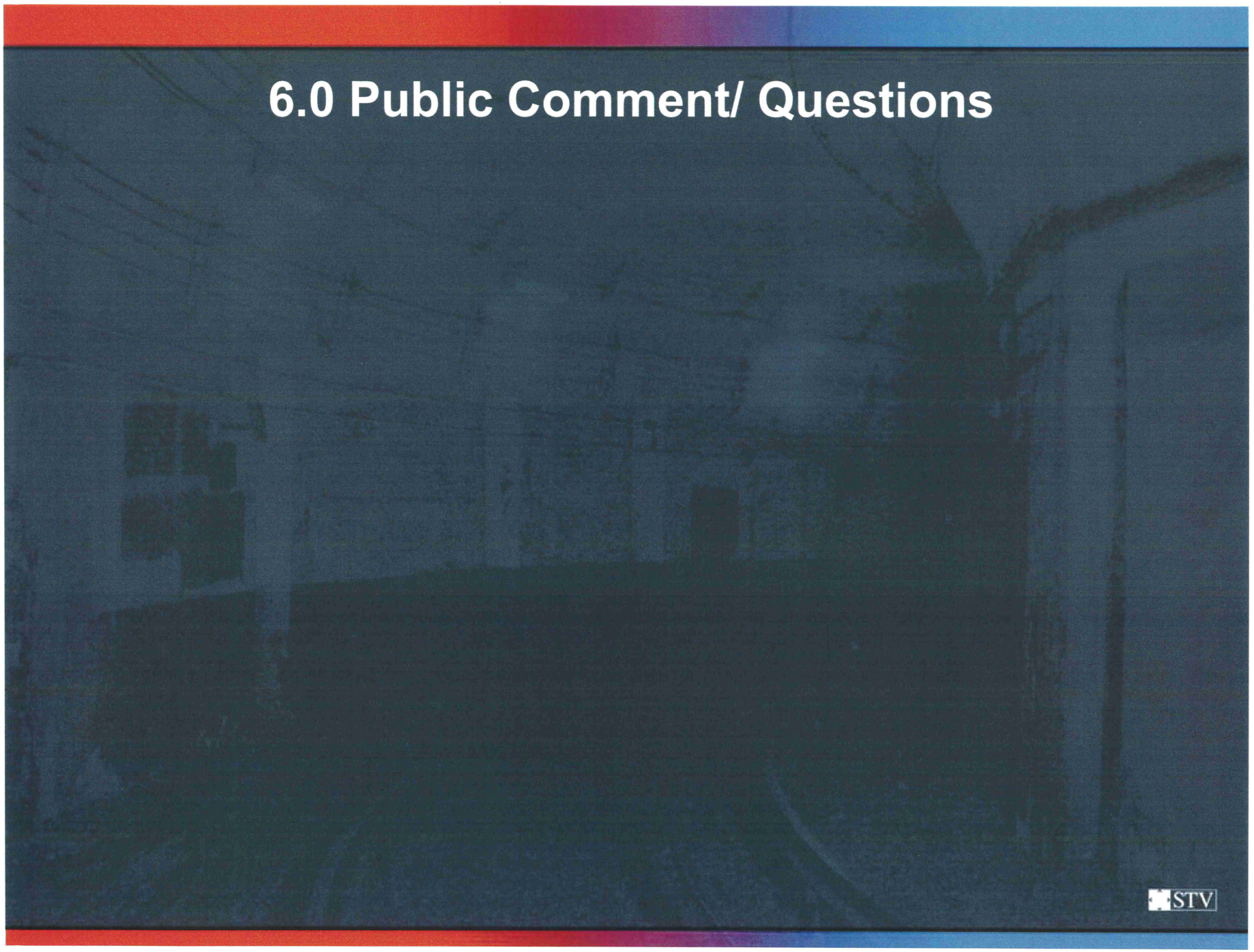
Vanasse Hangen Brustlin, Inc.

Figure 1 of 1 September 2009

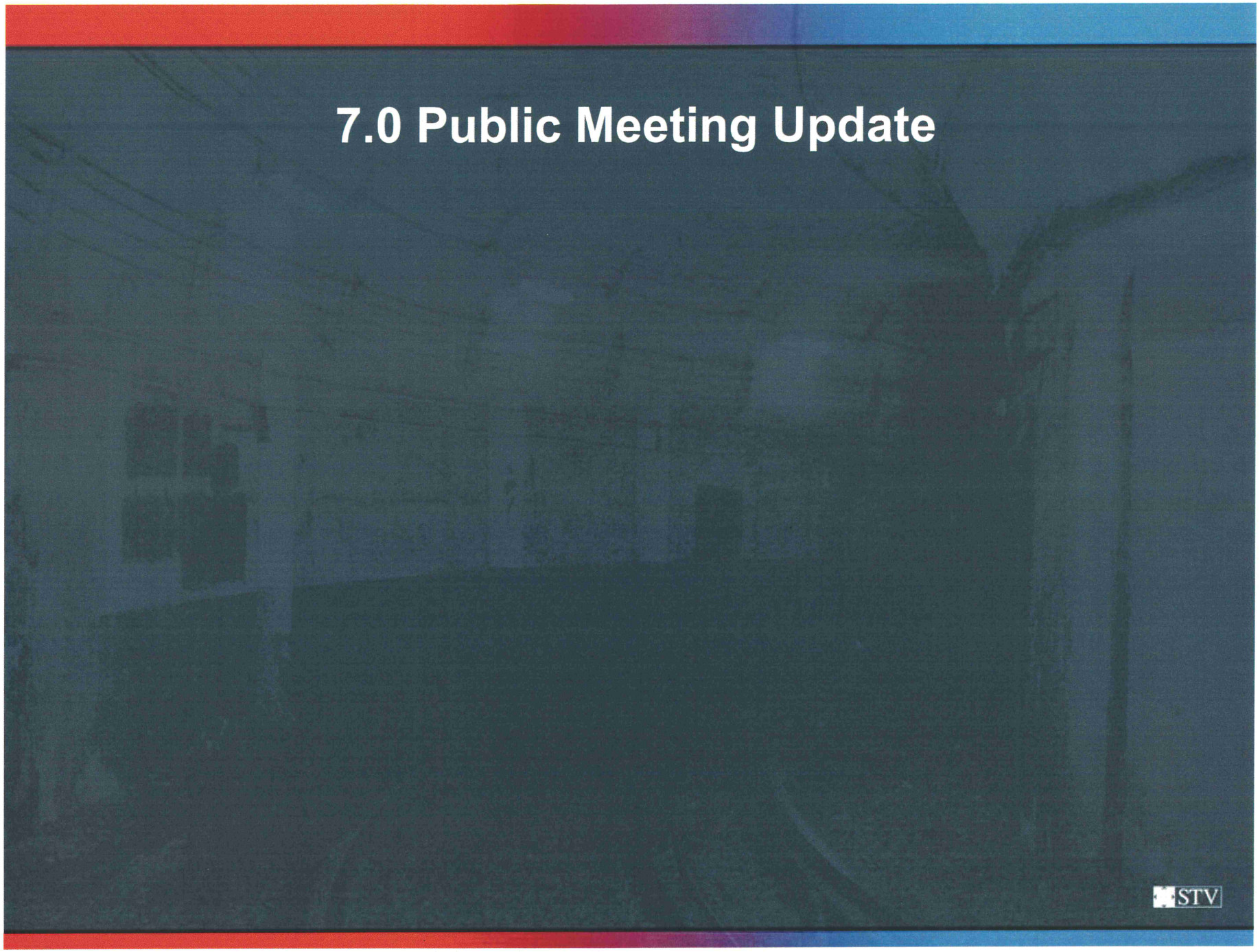
Red Line/ Blue Line Extension
Traffic Staging Plan - DRAFT
Phase 4x
Emergency Egress Hatch Construction

STV

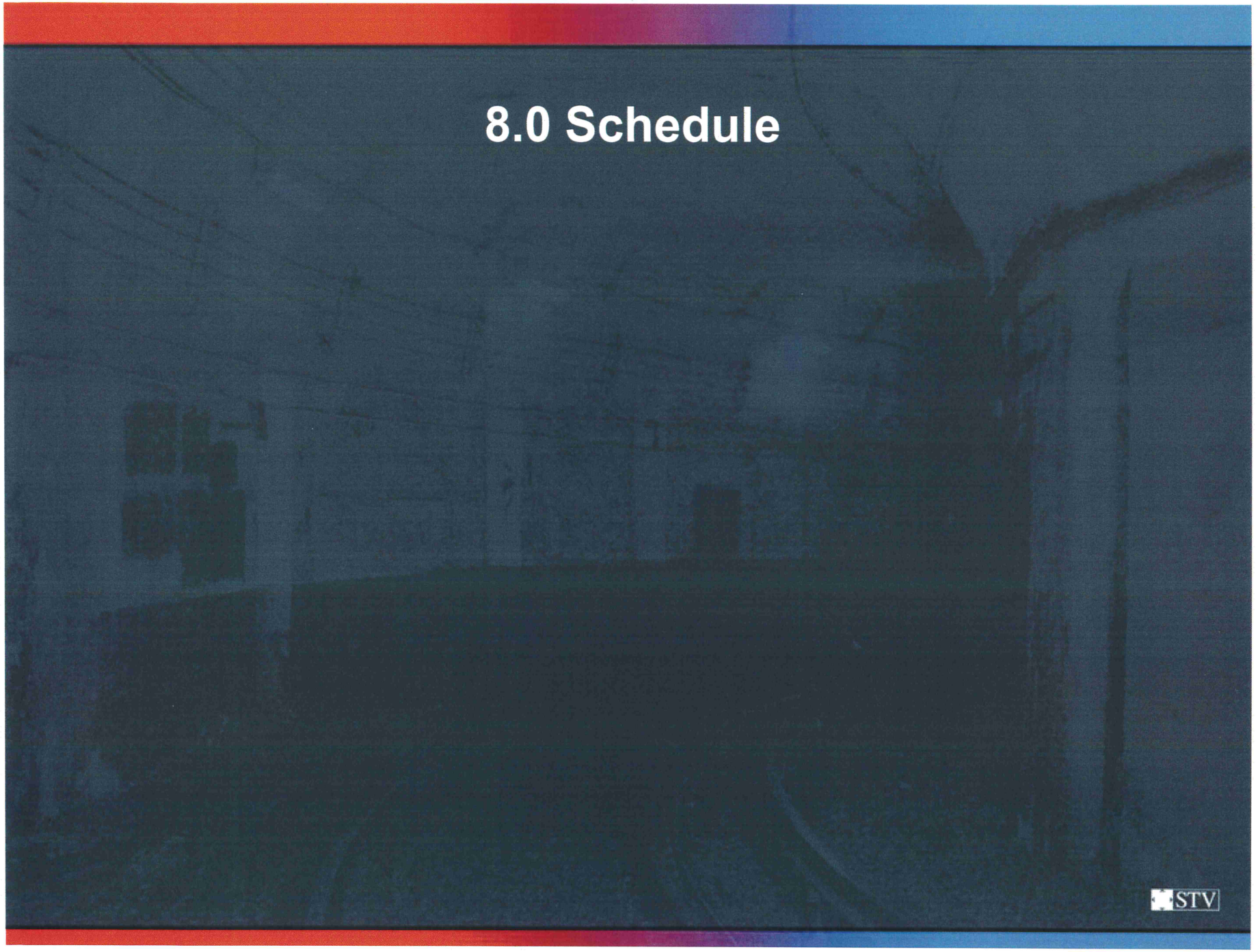
6.0 Public Comment/ Questions



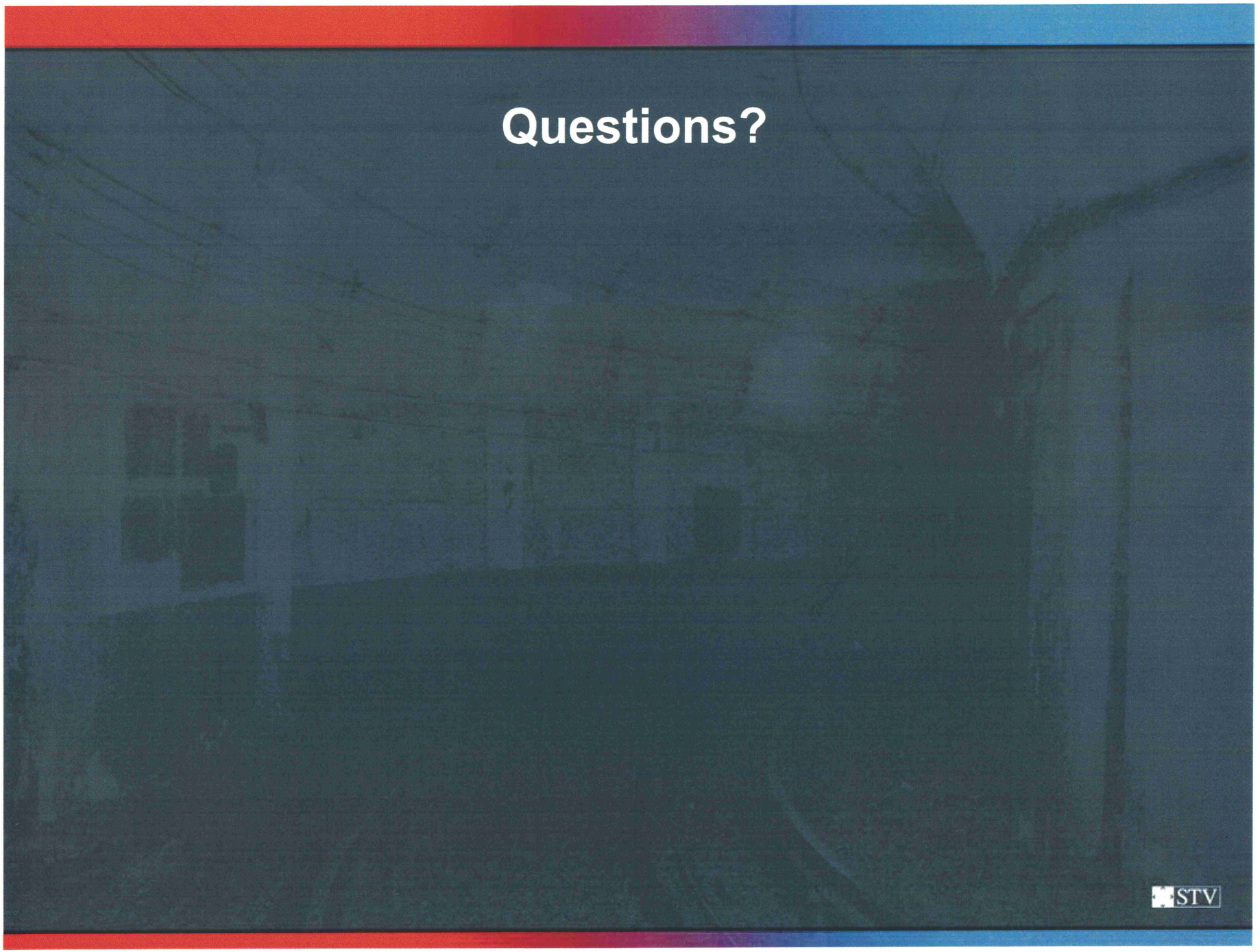
7.0 Public Meeting Update



8.0 Schedule



Questions?



Project Contact Information

Please contact Central Transportation Planning Staff (CTPS) Scott Peterson,

617-973-7078, scottp@ctps.org

for information about transportation systems planning.

Please contact public involvement representatives Nancy Farrell or Regan Checchio, 617-357-5772 (nfarrell@reginavilla.com; rchecchio@reginavilla.com). if you would like to arrange a briefing for your organization or neighborhood this fall.

EOT Project Team: Kate Fichter, 617-973-7342, Katherine.Fichter@eot.state.ma.us; Scott Hamwey, 617-973-7210, Scott.Hamwey@eot.state.ma.us

PROJECT WEBSITE –http://www.mass.gov/eot/redblue

Project background materials, minutes and presentations are posted on this site.

STV